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SCHOOL LIFE

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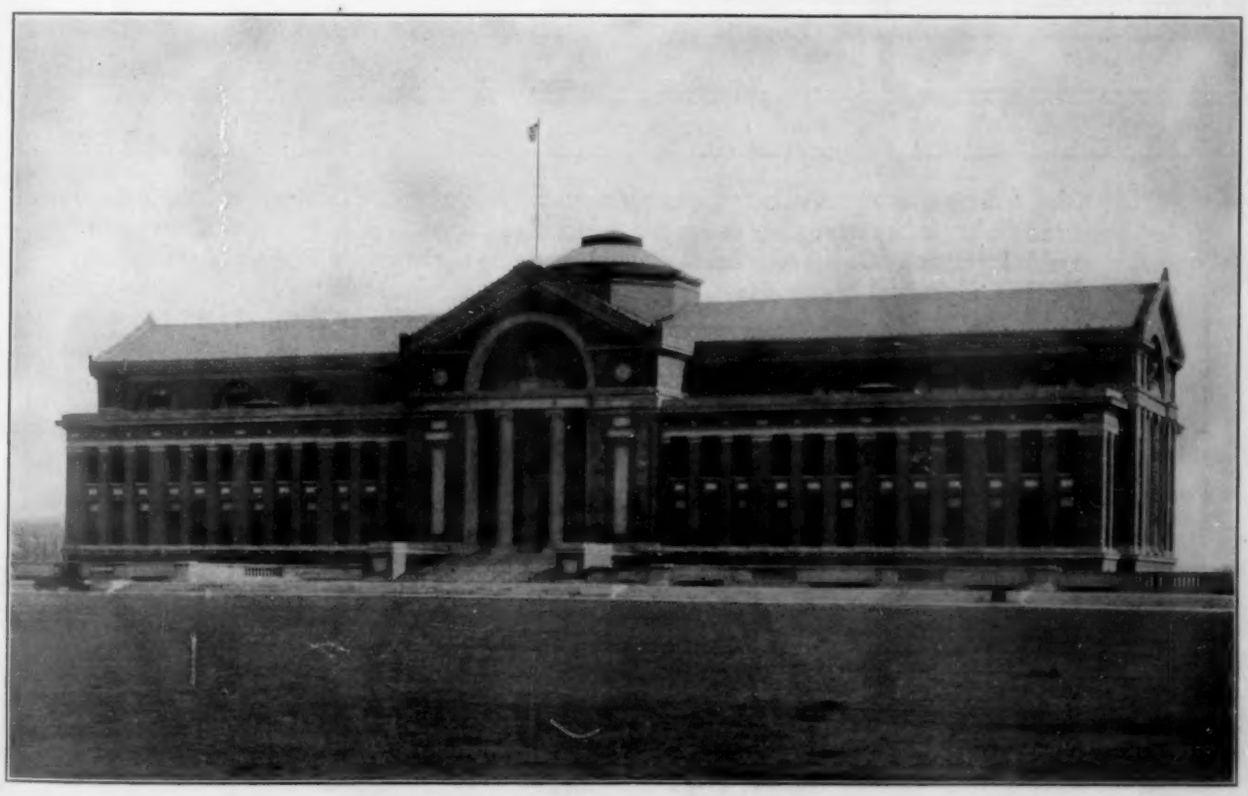

ARMY WAR COLLEGE, THE APEX OF THE EDUCATIONAL SYSTEM OF THE UNITED STATES ARMY

Published Monthly [except July and August] by the Department of the Interior
Bureau of Education Washington, D. C.

GOVERNMENT PRINTING OFFICE

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SCHOOL LIFE is not an educational newspaper, nor an educational review. On the one hand, the field is so broad and the happenings are so many that no one periodical could possibly print accounts of all the events of even reasonable importance. On the other hand, profound discussions of abstruse questions would not in general come within the Congressional injunction to diffuse educational information and would not appeal to the major part of the teaching fraternity. That field furthermore is fully covered by the technical journals of special character.

The effort is made to present a magazine so diversified as to be of value and of interest to all who are engaged in the work of education. The hope is entertained that the constant reader of SCHOOL LIFE, whoever he may be, will have a good understanding of the conditions and tendencies of education in the United States and a reasonable knowledge of educational trends in other countries. Personalities, mirth, and pedantry are equally avoided, for there is no space for them.

To say that SCHOOL LIFE is an organ of the Bureau of Education means not only that its contents are examined and approved by the head of the Bureau but that it has the benefit of the participation and the contributions of the members of the staff of the organization.

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SCHOOL LIFE

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Secretary of the Interior, HUBERT WORK - - - - - *Commissioner of Education,* JOHN JAMES TIGERT

VOL. X WASHINGTON, D. C., JANUARY, 1925 No. 5

Army's Principal Peace Problem to Teach Soldiers to Train Others

Standing Army Necessarily Small and Insufficient in Serious Emergency. Facility for Rapid Expansion of Military Resources the Essential Objective. "Applicatory Method" of Instruction Developed and Put in Successful Operation. Modern Military Operations Depend upon Small Units. Individual Intelligence a Prime Factor. Civilian Educators Aid in Developing Military Texts

By JOHN W. WEEKS, *Secretary of War*

CIRCUMSTANCES control the educational methods which have to be adopted by the military establishment. Our national policy with reference to armed forces requires the maintenance of a standing army relatively very small in proportion to the size of the forces we should have to raise in any except very minor emergencies. We depend, by and large, upon the utilization of the citizen man power of the country and upon their adaptability from the ways of peace to the methods of war. With such a policy, the safety and security of the country depends, to a large degree, upon the efficiency of our methods of instruction—upon the rapidity and thoroughness with which those already familiar with military matters will be able not only to train and instruct those not normally concerned with such matters, but also to perform duties far more difficult than any duties of their pre-war rank.

Superficially, the chief difference between civilian occupations and military work seems to be a difference in equipment. The soldier wears a uniform; the civilian wears a sack suit. The soldier carries a rifle; the civilian a cane or an umbrella. The soldier walks; the civilian takes the street car or travels by automobile. It might appear, at first glance, that the principal thing to be done in converting a civilian into a soldier would be to furnish him with a uniform, to arm him with weapons of the branch of the service in which he will fight, and to train his muscles and nerves to the physical effort which military operations require. It is also, of course, necessary to prepare and redirect manufactories and material resources from peace to war purposes and effect an industrial mobilization closely correlated with the development of man power.

Yet, there is more than this. Battles are not won by drawing up balance sheets of man power, armament, and physical strength. The victory goes to that force which can most intelligently apply its material factors in an effective way. Battles are won by the same principle, the same factors, and the same traits of character which bring success in the industrial and commercial world.

In order to insure the success of our arms in the defense of this country, the War Department has developed and successfully put into operation what is known as the applicatory method of instruction. This method consists chiefly in giving the student a problem in which he is required to apply the material at hand according to the sound principles of method in order to accomplish the result required.

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After the student has solved a series of problems of this sort he acquires facility in the art of executing the details of his work. The situations in the problems given him vary because the situations in the Military Establishment continually vary. The principal need is to develop in the student their previous experience will be of greatest practical value. The first step in our educational organization has therefore been concerned with standards. It has been to draw up specifications for the various military occupations with the assistance of expert educational leaders.

Electrical laboratory at Motor Transport School

clear thinking and efficiency in working with his materials according to sound principles. These things are developed by this method. By this method the American Army expanded itself during the World War almost forty times.

This method of military instruction has been applied to all things that have to be done in Army work. Since the modern army in active operations is a large organization with complicated equipment, utilizing all the appropriate devices of modern civilization and modern science, it naturally follows that training given Army men deals, in a large number of cases, with the same type of material as civilians use in civilian occupations. It is apparent, even to the uninitiated, that the Army has its doctors, lawyers, clerks, accountants, motor mechanics, blacksmiths, teamsters, and a host of other specialists. It has radio experts, telephone experts, transport experts, and administrative experts. In developing the technique of instruction in these matters, the Army has contributed in no small degree to the development of educational technique and method in general.

Each Individual for His Proper Place

When a nation transforms its civilian man power into military man power, the first essential is to place individuals where they will be of the most use. Since the Military Establishment includes a large number of specialists whose work parallels and is correlated with special work in civilian occupations, it is necessary to place those experts in a position where

The War Department has prepared a series of minimum specifications for all military occupations. For instance, the degree of skill and knowledge and the personal traits required for troop leaders, mess sergeants, supply sergeants, radio operators, automobile mechanics, and specialists of all classes has been carefully determined in consultation with labor experts. Next, tests have been devised to determine rapidly the exact degree of qualification of each person in the work which will be assigned to him. Then methods of training have been adopted which will shorten the periods of practice and instruction in order to develop the skill and impart the special knowledge required of these individuals. This work, which has been going on ever since the World War, has reached a point where it is possible to say that in many lines the Army work in defining instruction and classifying it into unit operations represents a distinct advance in the educational field. Although there are exceptions, and although the "problem method" or "project method" of instruction has been used to some degree in civilian educational circles, it can nevertheless be stated that the Army is taking the leadership in this work.

Army's Experience Useful to Civilian Education

Civilian educators at the University of Nebraska, University of Minnesota, and Columbia University have spoken in the highest terms of the psychological soundness and practical efficiency of military methods of instruction. The series of training pamphlets thus far completed—dealing with instruction in rifle marksmanship, close-order drill, communication work, carpentry, motor mechanics, and other similar subjects—have been scrutinized by scholars in educational method and have been uniformly indorsed. Uniformity in instruction and insistance on the attainment of certain standards before beginning learning, and at the end of the learning process, will, it is believed, do much to improve educational method and to stimulate efficiency among expert workmen throughout the country whether these be in the Army or outside.

Enlisted group instructed by an Army finance officer

The essence of the military spirit lies in an appreciation of the need of cooperation for the furtherance of the common plan and in the development of individual responsibility and initiative within the scope of the activities of the individual. The applicatory method is not a mere "problem method" nor a "project method" devised to create interest. It does not cater to the whims or the individual fancies of separate persons. It has been developed so as to obtain the greatest good for the greatest number and to secure uniformity in operation and a loyal consistency in performance within the Military Establishment. There is no inclination to make Army work essentially agreeable or pleasant or to consider instruction periods in any sense dependent upon a "play spirit."

Develop Interest and Pride in Achievement

Military instruction is carried on always under the impelling demand for practicality and an intense seriousness of purpose for the good of the country. By defining objectives and standardizing our tests, we develop the natural motives of competitive interest and pride in achievement. A driving force is not needed. The instructor leads because he is qualified to lead and because all are headed in the required direction.

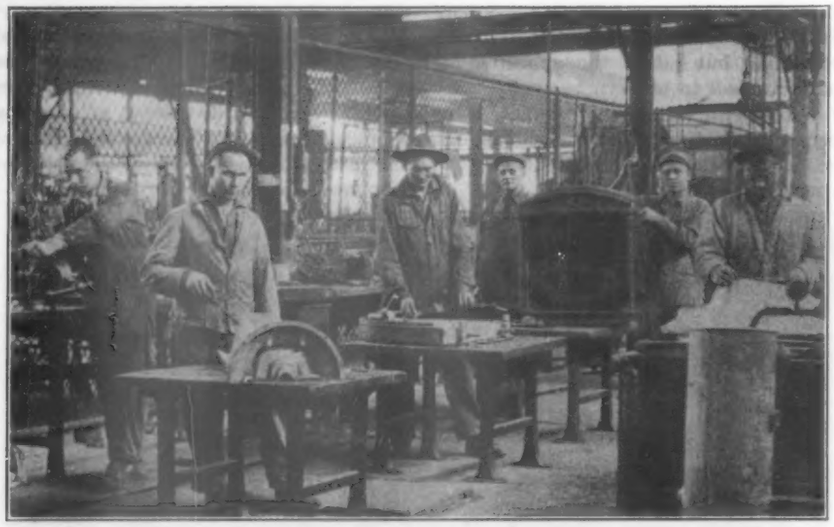
An inclination still seems to exist to interpret military affairs in terms of mere obedience. There is a tremendous difference between mere obedience and loyalty. Loyalty and discipline in the Army imply a sense of duty and attitude of mind which will insure each individual's doing his own job in conformity with the common plan. The individual has his sphere of action. Within that sphere he has his responsibilities. His responsibilities impel him to work and make his own decisions and act, when occasion demands, on his own initiative. Subordination is not subordination of the individual, but rather the allocation of the individual to his own particular part of the general task, upon the successful accomplishment of which individual part the successful accomplishment of the general task depends.

An up-to-date shop for teaching carpentry

In other days, generals stood on hilltops and directed their armies in person. Colonels have led their lines of soldiers into action. But now the subordination is so complete and extends so far that individuals of high rank have lost direct control. They give instructions and general directive orders. The work of an army now depends upon the coordination of the activities of separate platoons, of separate squads, and even, in a large number of cases, of separate individuals, for now troops on the battle line are scattered over a wide area. There are no serried rows of soldiers marching to the assault. There are groups of men, each assigned to its objective, groups sometimes as large as a platoon or company, and sometimes as small as individual squads of eight men, and even in the squads the individuals are scattered over a width of 40 yards instead of standing shoulder to shoulder like the red coats of the historic British squad or the veterans who faced one another at Gettysburg.

With such a method of warfare imposed upon us and with the necessity of each individual knowing his job, and with our military policy of depending in the main upon citizen man power, the major military problem is a problem of training. It is not only a problem of training the individual soldier, but it is also a problem of training the individual soldier how to train other soldiers. When Regular Army units are expanded in time of war; when inactive units are filled to their full complement; when Guard units add recruits to their numbers; when reserve officers enroll and train the citizen man power of the country; when organizations which have come through early engagements have

Training in radio transmission and receiving at Plattsburg Barracks, N. Y.



Sheet metal and radio repair laboratory

to receive additions and replacement, the essential problem is, necessarily, training and instruction.

Problem of Utilizing Man-Power

We do not train our entire citizenry to the tasks of war as the citizenry of Switzerland is trained under compulsory service. We train those whom we enroll in time of peace, and teach them how to train others. We train our leaders; we train our instructors; every man who wears the uniform will have to become, in the hour of emergency, an instructor of those men who do not know the military ways or the military means. By attaining efficiency in training methods, by devising training methods in conformity with the temper of the American mind, and the spirit of the American people, the Military Establishment is conforming to the principles by which we hope to secure that common defense of the American States which the Federal Constitution was devised and adopted to secure. National defense is a problem of the utilization of man power. Training for active operations to-day is a complicated problem in training man power. But so are other things problems of training in the mass. Man power must be trained to develop the best results in industry and in civic education.

Although we are officially concerned with training methods, only as they affect our military problems, we are naturally glad if, in solving our own difficulties, we live up to the historic tradition of the American Navy and develop ideas and practices of general benefit to the American people. The Army serves the country, and serves it, not only in time of war but also in time of peace, by providing a host of by-products of which the peaceful activities of the Nation can take profitable cognizance. Looking at our educational method in such a manner, we like to believe that we are rendering service to the American people in other than military ways. That we are devising means by which all the potential possibilities of our population may be developed.

Home Economics Leading to Science Degree

A new general "major" in home economics, with minimum science requirements, has been installed this year at the University of Wisconsin. "Food, clothing, shelter, and applied psychology relating to the family group" may be combined with the regular college requirements in English, foreign language, and science, leading to the B. S. degree.

By this arrangement a double teaching major may be obtained through combination of the education courses required for a teacher's certificate with a major in letters and science and the general major in home economics. A graduate may thus be prepared for positions in the field of interior decoration, advertising, or journalism.

Oil Royalties Used for Current Purposes

A question has arisen in Wyoming as to whether or not distribution of oil royalties accruing from State school lands is legal. The act admitting Wyoming to the Union provided that the proceeds of the sale of school lands should be made a part of the State permanent school fund. The supreme court of the State has held that the sale of oil is a sale of the land, because it is a part of the land and part of its permanent value. A majority of the voters at the recent election expressed approval of an act by the legislature which would permit current distribution of oil royalties up to one-third of the amount received. Some contend that this one-third also should be placed in the permanent fund.

Hundred Visiting Teachers in United States

"Liaison Officers" to Maintain Contact Between Home and School. Regular Teacher Unable to Visit Pupils' Homes

By EDITH A. LATHROP
Assistant Specialist in Rural Education
Bureau of Education

THE VISITING TEACHER: Once the teacher "boarded round" and incidentally became acquainted with the home life of her pupils, but those good old days have disappeared. The teacher, however willing she may be to visit the homes in her community, can not find the time after teaching all day and preparing for her next day's work. In order to connect the home and the school in a more vital way the visiting teacher has made her appearance. This teacher visits the homes to discover the causes of maladjustment between the child and the school and to assist in its readjustment.

There are at present more than 100 visiting teachers in the United States, representing practically two-thirds of the States, more than 50 cities, and a few counties.

In Monmouth County, N. J., the visiting teacher works with the county psychiatric clinic, the public health nurses, and the general social workers.

In Huron County, Ohio, the visiting teacher has undertaken a county program for community betterment. One of the means for carrying out this program is the adoption of a community score card.

Boone County, Mo., has recently employed a visiting teacher. Her work is assured the hearty cooperation of the school boards, the county superintendent, department of sociology of the State University, and the dean of Stevens Junior College. Both of these institutions are located at Columbia, the county seat.

Recent Marked Growth of Colombian Library

The National Library of Bogota was founded in 1767 with a basis of about 4,000 volumes, practically all theological or text books. The following year it was made the nucleus of the Royal Library, and in 1823 it was opened in new quarters as the Biblioteca Nacional. At that time there were about 12,000 volumes. Its shelves now contain more than 100,000 bindings.

The main library is open to the public for reference, and a monthly review is issued to acquaint readers with the facilities of the institution. Books are loaned at a rental of 20 centavos a week.—*Samuel H. Piles, American Legation, Bogota, Colombia.*

Service the Needed Spirit of Modern Science Instruction

Best Secondary Education is Best, Regardless of College Attendance. Public Funds Most Readily Procured for Science Teaching. Constant Increase in Number of Students of Science. Unprecedented Growth in Branches of Science. Secondary Courses Strikingly Similar to College Courses. Dissatisfaction with Many Introductory Courses. "General Science" Shows Remarkable Growth in Favor.

By OTIS W. CALDWELL
Director Lincoln School, Teachers College, New York City

THIS DISCUSSION proceeds upon the theory that the best education for young people of secondary school age should be best for them whether they do or do not go on to college. Further, it is assumed that those who go to modern colleges, as those who do not go, are in great need of a sound general education touching upon the knowledge and the arts which enter into current life. All need an education which shall illuminate knowledge and art and by use of them shall develop attainable social and personal ideals concerning those aspects of modern knowledge and arts which enter into the lives of young people. It may even be argued that those who go to college are, in proportion to their numbers, more greatly in need of a socially meaningful secondary education, since they are later to have opportunities for larger intellectual influence and thus need to be more secure in their understanding of the real human services of modern secondary and collegiate scholarship. A further basis of this discussion is found in the fact that much more study has been made in the past decade bearing upon improvement of secondary school subjects and methods than has been made in college subjects and methods. Therefore, it is appropriate that college subjects and requirements shall be studied, to the end that they may adequately continue the slowly but definitely improving secondary school subjects.

Advancement in Science Exceeds Other Branches

In the following discussion of the sciences, it is not to be inferred that they are regarded as being either more or less important than other subjects of instruction. It is probably true that more advancement has recently been made in science instruction than in most other secondary subjects.

II. *The public believes in science.*—It is not news to state that appropriations of public funds are more readily procured for agriculture, for household arts, or for engineering than for most other purposes. So well recognized is this fact that programs for general education or for other purposes are frequently associated with applied science for the sake of the increased hope of successful support. The common people believe in the kinds of science which yield benefits which they can see clearly and soon. They are slowly, but steadily, coming to believe in the development of scientific principles whose fruits may be more ultimate but possibly more important.

Benefits of Scientific Discovery Quickly Accepted

III. *The public uses science.*—The public use of science is so constant as to make even a meager picture of it impossible. All our working days and all our sleeping nights are ordered upon the uses of modern sciences. Surely no advocate of an improved science teaching can quibble about the public's being slow to use the material fruits of modern science knowledge. There may be a few belated users of science, but natural processes of removal of the ill-adjusted seems soon to catch those who lag too far behind the advancing crowd of modern peoples. Educationists need have no great worry as to whether the immediate material benefits of scientific discovery will be accepted by most people. Whatever may be thought or said about the educational use of the sciences in schools and colleges, current life has accepted the sciences, and constantly asks, expects, and receives the cumulative material benefits of modern scientific thought.

IV. *Science is everywhere, both in affairs and in schools.*—The quantitative use of the sciences in common affairs and in schools and colleges is now more extensive than at any preceding time. Dr. E. R. Downing, who has given much time to a study of the sciences in Europe and in America, says that we teach as much science in elementary schools as is taught in Europe, and that it is done better in this country. Also during the past 10 years there has been an increase in science in the elementary schools of the United States.

In high schools there has been large increase in the quantity of science instruction, the greatest increase having been in those commonwealths in which definite programs of science sequences have been adopted. In Pennsylvania, for example, in the State report of 1923, a student registration increase of 19.8 per cent is recorded in one year, based upon a calculation including all four-year high schools within the State. So far as recorded this is the largest yearly increase in any State.

In colleges and research institutions, there has been great increase in the provisions for and acceptance of opportunities for work in the sciences. Independent industries have very generally established research departments which are adequately supported and are manned as well as it is possible for them to be with the present training of research workers. New science knowledge is constantly coming from these and other centers of careful study, to such an extent that we are no longer surprised to have our daily paper make announcements of discoveries of very great import. Great discoveries are now so frequent that we note them almost as the expected content of the daily press.

Secondary Courses Summaries of College Courses

V. *What has caused the change in the science situation in high schools?*—The recent and unprecedented growth and refinement of science knowledge has produced many new branches of science, each with its own "ology"; each with its own body of special knowledge, methods, and special workers. In many cases these special and highly refined subjects were crowded into the secondary schools, and at the same time the ancestral body of common aspects of science were crowded out. The secondary courses became summaries of collegiate courses, not elementary insights into significant topics for young people. The extent to which this is true is not realized by those who have not made a study of the facts in the case.

Let us take collegiate and secondary physiography as an example, and compare

a comprehensive college textbook in the subject with a secondary schoolbook in the same subject by the same author. Possibly the best college text ever written in this subject is Salisbury's Physiography, which appeared in 1907. His high-school text appeared in 1908. The college text is for students who elect the course in any college year. The high-school text is for use, as the author says, "For first or second year high-school pupils." The college text has 770 pages; the high-school text, 531 pages. The college-book pages are larger than those of the high-school text. The college book has 707 illustrations; the high-school book has 469, the latter being almost always identical with the same number used in the college book. There are 24 maps in the high-school book, 14 of which are identical with 14 of the 26 in the college book, 7 others being almost identical with those of the college book, thus making 21 of the 24 maps almost or quite identical with those of the college book. There are 26 chapters in the college book and 20 in the high-school book; however, 17 of those of the high-school book are the same as 17 of those of the college book; one other high-school chapter is composed of 2 college chapters combined, without material change of the topics or contents; and another high-school chapter on the topic "The ocean" consists of a combination of 5 college chapters which in the college text are upon subdivisions of the topic, "The ocean." In the high-school book the chapter dealing with the ocean has five subdivisions, each of which has exactly the same heading as that of the corresponding college chapter. Within the text matter many sentences are identical with those of the college text, the condensation having been secured in the main by clipping—not by rewriting.

Differences in Typical Text Made by Others

We have, however, accounted for but 19 of the 20 chapters of the high-school book, though we have accounted for the 26 chapters of the college book. The added high-school chapter which does not appear in the college book is upon the topic "Physiography and its effects on plants and animals," this chapter having been written not by the physiography author but by two teachers who had taught younger people.

It is not likely that such a close analysis could be made for many such cases, but the same point may be clearly demonstrated by a study of college and high-school books in physics, chemistry, zoology, botany, and physiology.

In a sense, it may be said that the very success of scientific advances in our time has caused the objectionable high specialization in secondary schools. College specialists have set special technicalities as the body of requirements to be learned by secondary pupils.

Dissatisfaction With Introductory Courses

VI. *Dissatisfaction with technical work in science for the early years of high school.*—Dissatisfaction became most notable in the early years of secondary schools. Many so-called introductory science courses were tried in one part of the country or another. These included courses in physiology and hygiene, physiography, biology, or separate course in botany and zoology; or even occasionally there were introductory courses in physics, chemistry, geology, and astronomy. With all this array of so-called introductory science courses, dissatisfaction with science instruction increased, while science knowledge itself grew in value and public recognition. The college science men, when they spoke of the results of secondary science, seemed to take little more comfort in the situation than did educators in general, though the illogical conclusion was often stated that young people would do better and like sciences more if they were compelled to take more of them. Compelling people to do distasteful things always has been a delusion of formalists. It seems not to have occurred to collegiate science to look into a reflecting mirror for part of the cause of the trouble.

VII. *A new type of introductory science course.*—Some 15 years ago several groups of science teachers began to use the methods of science itself in trying to develop the contents and methods of a more useful introductory science course. These groups formulated hypotheses as to what secondary science might perchance do for young people, then selected materials and methods designed to see if the hypotheses could be realized. It was found that the various introductory courses contained much very useful factual material, and that these materials from several introductory courses then in use could be more productively organized if a topical plan of unification were used instead of the special science subject plan. Thus came the course in general science. No one who is observing the workings of this course believes, I presume, that its organization or methods or outcomes are now definitely determined. Perhaps they may not soon be, possibly should not be, but the startling and widespread success of this type of science course is one of the outstanding achievements of modern science.

General Science Courses Fruitful

VIII. *The unprecedented success of the course in general science should be interpreted.*—Various statistical studies of separate States, sections of the country, and of the whole United States show the same types of results so far as numerical evidence is concerned. Only a few of these studies can be cited here. The Pennsylvania study, previously referred to, shows that of the approximately 202,000 four-year high-school pupils in that State in 1922–23 approximately 54,000 were studying general science, and more were studying the other sciences than before general science was introduced. Dr. Edna M. Bailey, in a recently published and detailed study of California's four-year high schools of all classes, shows that in 1922–23, 71.2 per cent of all California four-year high schools taught general science; also that the subject is in the junior high schools throughout the State.

Dr. F. E. Bolton, in a study in the State of Washington, finds that one-sixth of all pupils are now registered in general science, almost one-sixth in biology, and as large a proportion in physics and chemistry as before general science was introduced.

Bureau of Education's Statistics

The report of the United States Commissioner of Education for the school year 1921–22 shows that in 13,700 public high schools there was an enrollment of approximately 400,000 students in general science.

American educators hold in their hands the destinies of this nation. Their task is not like that of the dashing soldier or the popular statesman at whom all the world gazes; but in the unobtrusive quiet of the school-room, though no eye, save that of God, witness the work, they may infuse such a love of our country and its institutions into the hearts of the coming generations of children, that the Republic, on its secure foundations, will stand as firmly as the Egyptian pyramids.—J. P. WICKERSHAM.

The point of view of general science is slowly finding its way into the other high-school sciences. There does not seem to be a need of any reduction in quantity of learning in any special science subject; indeed it seems likely that the quantity of learning is being considerably increased. Its nature is somewhat changed, and this change toward a more significant science instruction should be useful both to high school and to colleges, but most useful of all to citizens. Are the science men, the specialists, really willing to have their subjects changed for this larger usefulness? If not, may we inquire whose property are these science subjects?

The question, therefore, of whether the public desires a new type of science instruction seems clear. It is amusing to have the question raised as to whether college boards will accredit for college entrance a course which has found a place of such service in modern secondary education. Possibly these boards wish to put their own organizing and refining hand upon the course before giving it full recognition. They are respectfully requested to recall what occurred in the special science under these same hands.

IX. *There is a world movement toward changing science instruction.*—In 1921 our Bureau of Education published a report on secondary science instruction. This report was the result of seven years of work of a committee of 50 persons. Their recommendations are most important and are based not upon theory alone but upon practice in the best schools. It is the type of science sequences recommended in that report which is now operative in Pennsylvania, California, and most other States of the Union.

In 1918 a British science commission published a very comprehensive report by a committee, of which Sir J. J. Thompson was chairman. The recommendations of that report are in spirit and in many details closely like the United States report.

Science Study a World Movement

In the Orient everywhere one goes he hears of movements to improve and increase science instruction. It is a world movement, the whole civilized world realizing that the achievements and method of thought of modern science must be possessed by those who would aspire to progress.

X. *Why a new point of view of science instruction?*—Science knowledge and scientific methods of work are conspicuous features of modern life. Nature is being brought under control by man's mind. We know more of nature's truths than at any previous time in human history. We can fly or speak around the earth. We now know of ether waves by means of which new sense organs are created, as has been done with the radio. Indeed, the radio is nothing more than a new kind of ear which hears by use of wave lengths for which nature made no ear. We know of light waves, by which we could see around the earth if only we had the right kind of eye to use these waves, and sometime we may possess such an eye. There seems almost no limit to scientific accomplishment.

Proper Use of Science the Needed Development

It is a matter of very great import to human beings whether modern science is learned by modern peoples merely that it may be used. If that is all, it is bad for those who learn it. Science knowledge has grown and will grow so that undreamed control of forces and materials will be had. Can the race be trusted with controls without an accompanying sense of responsibility for the knowledge thus possessed? The *proper* use of science in modern life, not only the *possibilities* of its use, must be developed in our courses of science instruction for young citizens in a free country. Such a sense of social and moral obligations we dare not omit, else we shall have an increased speed and quantity of living without the restraining anchorage of social responsibility. "Knowledge is power," either for good or bad ends, but knowledge for social service must supplant the mere power idea.

It is not now safe for society nor for some nations to possess certain knowledge which science now possesses. Diseased bacteria properly understood and properly placed will destroy whole cities. Until people do not wish to destroy their enemies or their competitors they must not possess the means or knowledge for doing so. Science courses for all the people must help all the people to interpret science for service, not science for power. Service, not power to control, is the needed spirit of modern science instruction.

Wisconsin University Instructs Housewives in House Decoration

Day schools in house decoration for housewives were recently conducted by the University of Wisconsin extension division in five cities. The lessons consisted of talks and lantern slides on interior decoration. By the use of material and demonstrations in arrangement of rooms, an attempt was made to show women the possibilities that exist in the careful use of the things they already have in their homes. The schools are continued for a week in each city. They will be continued on the same plan in other cities until the middle of the winter.

North Dakota's Intensive Parent Teacher Campaign

To demonstrate the possibilities of the parent teacher association in rural communities and thus to furnish an inspiration to other States, an organized campaign has been inaugurated in North Dakota by the Country Life Committee of the National Congress of Parents and Teachers. The campaign will be concentrated principally in three counties for the present, but the other counties of the State will also receive attention.

The plan adopted contemplates a program covering five years. In each year some specific rural need will be chosen as the central theme, and that theme will be emphasized in some way at every local meeting. The objective for the first year will be the development of community spirit—to get the people together and to accustom them to work as a unit for the common good.

North Dakota was selected for this demonstration because it is a typical rural State and because the cordial cooperation of the State and local school officers was freely offered. The State superintendent of public instruction will, in fact, direct the campaign not only by virtue of her office, but through appointment as State representative of the national chairman of the Country Life Committee of the Congress of Parents and Teachers.

This demonstration is similar to that which was conducted in Delaware with such success that in 59 communiteis a representative of every taxpaying family is an active member of a parent teacher association. A like campaign is contemplated in Alabama.

American Equipment Desired for Mexican School

An industrial school is planned for Mexicali, Lower California. Courses for boys include industrial chemistry, bookbinding and printing, plumbing and metal working, furniture making, carriage building, shoemaking, saddlery, and the manufacture of soap and perfumes; for girls courses will be given in domestic science, confectionery, shorthand, and type-writing, dressmaking, and kindred subjects.

Plans for the building at an expenditure of 400,000 pesos, equivalent to about $192,000, have been tentatively approved by the local government. All materials used in the construction and equipment of the building will be purchased in the United States, and correspondence with American dealers is invited. Letters should be addressed to "Ing. J. U. Acosta, Palacio del Gobierno, Mexicali, B. C., Mexico."—*H. C. von Struve, consul.*

· SCHOOL LIFE ·

ISSUED MONTHLY, EXCEPT JULY AND AUGUST
By THE DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION

Editor - - - - - - JAMES C. BOYKIN

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JANUARY, 1925

All the Schools Concern All the People

ONE-FOURTH of our entire population is engaged in school work as pupils, teachers, supervisors, and administrators. The public schools constitute a great corporation spending over one and a half billions of dollars annually. Each citizen is a shareholder and has a voice in determining what kind of a school his community shall enjoy. Is your stock represented when school policies are determined?

The life of American children to-day is so different from that of our grandparents that they need a very different kind of help to meet these new problems. When the butcher, the baker, and the candlestick maker, as well as the weaver and cobbler, were all members of the same family things done with the hands were learned at home and their worth was appreciated. Now we phone for what we need, drive the auto around the corner or at most a few miles over good country roads for them, or else have them delivered by parcel post. Children, therefore, no longer gain industrial education in their homes. The schools are supplying as much of it as they can.

The time that children spend in school should be much greater than it used to be. It takes more time to master problems than it does to learn rules. It takes more equipment to work out the details of problems than it does to memorize the words printed in a book. To-day children are taught how to sew and cook and how to make many things they need in their work and play. They test their designs by actually making the things planned in order to prove the accuracy of their thinking.

The school should give every child an equal opportunity to attain his highest development. It should secure for him a healthy mind and body. It should imbue him with the principles of personal honesty and a strong sense of his obligations to his family, his community, and his Nation. It should give him the education and training necessary to support himself and to bear his just share in maintaining a community with high American ideals. It should develop his capacity for the wholesome use of leisure. It should inculcate a broad and understanding patriotism which insures our country's highest good.

Better understanding of the school's problems and heartier cooperation of all citizens in their solution are needed. The number of pupils dropping out of school after the fourth grade is appalling. Out of 100 pupils who enter the fifth grade, 66 fall by the wayside during the next three years; 20 more drop out during the high-school years, leaving only 14 of the original 100 entering the fifth grade to complete the high-school course.

Almost as startling is the poor daily attendance of the pupils enrolled in the schools. Of each 100 pupils enrolled in all the public elementary schools and high schools, 79 are in actual daily attendance. This irregular school attendance caused the waste of $250,000,000 last year. Taxpayers robbed themselves of this amount and at the same time suffered their children to lose an average of nearly two months' schooling in a year.

Half of the school population lives in the open country and villages. Three and a half million of them still attend one-teacher rural schools. Many of the 175,000 one-teacher rural schools have undergone little change during the past generation. Their school terms are one or two months shorter than city and village school terms. Their teachers have received the fewest weeks of professional training of any group of teachers. More than one-fourth of them are teaching their first term of school. Their average age is three or four years younger than city and village teachers.

City people should learn more about rural education. Rural people should learn more about city schools. The ultimate economic success of the merchant and the manufacturer depends to a large extent upon purchases made by rural people. People's wants are greatly influenced by the kind and amount of education they receive. Thousands of adults from the country go every year to the cities to fill places in industrial, commercial, and professional fields. The services they perform and the kind of citizens they become in their new environment depend on their early education. It is imperative that the education they receive be such as to fit them for life in the city as well as in the country.

Place of Physical Education in the School

ALL EDUCATION is physical education in a measure. Everything a teacher does with a pupil is done by, and through, the physical machinery of that pupil. He learns to read and to write and to cipher by the training of eyes, ears, fingers, and vocal cords through the connecting link of brain and nerves. The teacher takes these organs as they come to him and does his best to train them into new ways of doing or of not doing. But this is not the sum of the physical machinery with which we have to deal, for organs for receiving information and organs for doing things do not stand alone.

The finest automobile is useless without oil and gas, and the best sense organs, brain, and muscles are useless without an adequate supply of energy derived from food and air. An automobile in good repair will do better work than one with defective parts or loose screws, and the same is true of the human mechanism.

It was formerly taken for granted that children sent to school for the first time, possessed good eyes and ears, or that these parts were in as good condition as possible. It was also taken for granted that these children were well fed, that they had plenty of pure air, out-of-door exercise, and sound sleep, and that they were in good health.

Unfortunately this is not true of all children. A very large number of them have defective sense organs, a very large number are badly fueled, and many are in poor repair from lack of restoring rest. It is bad policy and, indeed, an economic waste for a teacher to work with these machines until they are put and kept in their best possible condition for school work. And so physical examinations have been instituted to find out if defects or disease are present, and to get these handicaps removed or improved. It is only through such efforts that children can be put into shape to profit as much as possible by what is done for them in school.

It might be said that this is not the work of the schools, and perhaps some day it will be done chiefly before the children come to school; but at present no one else is attending to this important work.

But we go a long step farther. Having repaired defects as far as we can, we try to get the machine well fueled, oiled, and cared for. We try to teach the use of the right foods in the right amounts, and the appreciation of pure air, sleep, cleanliness, and the few other things essential for health. But we not only tell the child what to do; we try to get him into the habit of doing. Above all, we endeavor to arouse in him the ambition to be as well and strong as his heredity will allow, and also to interest him in the things that make for the health and welfare of his fellows. Certainly the knowledge and practice of personal and public health are of more fundamental importance than anything else that can be taught in school or elsewhere.

Health work in school falls short of what it might accomplish unless it has the sympathetic help of the home. It only requires an understanding of this work to turn one from a carping critic to a staunch supporter.

There is another side to physical education, and the words are often applied to this other important phase. General bodily exercise and play is essential to growth and health and for fitting the child for his school work and for his work and enjoyment in life after school.

Those who have grown up and have put away childish things may ask whether play, whether athletics and gymnastics, are essential for education. Educators themselves asked this question a half century ago, and many of them decided that playgrounds were expensive luxuries and that time for play was time wasted. So the recess period was given over to study and the playground was sold for building lots. It seemed an economy to boil exercise down to a few minutes in the gymnasium in order to keep the pupils from getting too much stooped, and even these few minutes were grudgingly spared.

But the school men soon saw their mistakes in trying to educate the mind while neglecting the development of the body, and now 33 States have made physical education an essential part of the school program. Playgrounds are found to be necessary and are now made larger than ever, and it seems likely that all forms of physical exercise may again become as much a part of school life as in the days gone by. Few yet realize the value of games and sports, for they are a source not only of health and vigor of body, but of health and vigor of mind. Above all, moral lessons can be learned on the playground as nowhere else.

American Education Week Literature in Demand

Printed and mimeographed documents amounting to 322,600 pieces were distributed by the Bureau of Education or by the Superintendent of Documents in connection with American Education Week. This number would have been much greater but for the fact that some of the documents were unavoidably delayed in the printing, and the supply of others, especially the "Suggestions" and SCHOOL LIFE for October, was not sufficient to meet the demand, which was greatly in excess of the expectation.

Writing of education in Esthonia, Hans Leoke acting consul for that country, says there are practically no illiterate adults in the Republic. Primary education is free and compsulory. Opportunity for advanced education is provided at 122 secondary and vocational schools and two higher institutions, the Technicum and the University of Esthonia. At the university more than 3,200 students were matriculated in 1922.

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New Departure in Programs for State Teachers' Associations

Departmental Meetings at Kansas City Were Unusually Attractive and Profitable. General Meetings Were Fewer in Number and Were Devoted in Part to Music and Social Activities.

By KATHERINE M. COOK
Chief Rural Education Division, Bureau of Education

SUPERINTENDENT J. J. Maddox, of St. Louis, retiring president of the Missouri State Teachers' Association, has been doing some pioneering in the arrangement of programs. This is evidenced by the proceedings of the Missouri State Teachers' Association recently held in Kansas City. Superintendent Maddox evidently believes that departmental rather than general meetings are those from which teachers benefit most, other things being equal.

The custom usually followed in arranging programs for State meetings, in the past has been to secure eminent speakers from outside the State for the large general meetings, departmental sections depending in large part on local speakers for the success of their programs. The result has been that speakers have been selected, not so much because of special contributions in particular fields of education, as for their general ability to hold a large audience, heterogeneous in their specialization in school work. There is at least some temptation that ability to entertain, to be heard in a large hall, and similar considerations enter into such selection.

Need for "Inspirational" Addresses is Passing

But education is becoming "professionalized"; fewer inspirational addresses and more discussion of scientific progress are essential. It is becoming highly specialized, with problems constantly increasing in number and importance in each specialized field. Correspondingly the number of persons of eminence in each is increasing—persons owing their reputation to specific contributions along particular lines of experimentation or investigation. Departmental groups at State meetings are relatively small; their meetings particularly adapted to concentration on specific problems or phases of problems. Those in attendance come with clearly defined purposes, are ready with questions and material for discussion taken from immediate experience. Freedom of discussion and close association is possible. The speaker is sympathetic to mental reaction; he is en rapport with his audience.

Recognizing this, the Missouri plan provided that each departmental section have its own particular "star," some more than one, most of whom were called upon to take no part in general sessions, but come to the departmental sections free to devote to them all of their time and consequently their best efforts. The general sessions were well provided for of course. A sufficient number of speakers from outside the State were brought so that all sections were equally well served. The "Who's who on the program" section in the official program of the Missouri State Teachers' Association for 1924, gives brief sketches of a total number of 23 speakers, of whom 17 participated in departmental programs; 6 in general sessions.

Better Allotment of Service is Possible

The arrangement obviates the necessity of a speaker dividing his time and interest between widely differing groups, as well as that of providing some sections namely, those which happen to represent the speciality of a particular speaker, with a kind of service not allotted to others. It makes unnecessary the custom of securing one year a specialist in one line and another year a specialist in another in order that different sections eventually have the opportunity to hear educators of note in their own field the result of course being that a majority of the sections are overlooked each year, at least so far as out-of-State speakers are concerned.

In addition, less than the usual time was allotted to general meetings; more to departmental sections. The number of general sessions devoted to addresses was fewer than usual, and opportunity was given for one general session to be devoted to a musical program and one to a play festival and general social gathering.

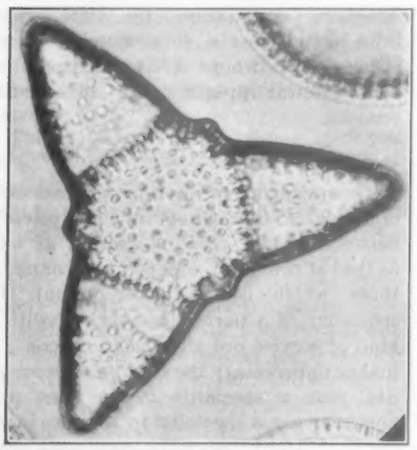
Missouri some years ago inaugurated the custom of holding sectional meetings in strategic places throughout the State early in the fall and one large meeting in November, on alternate years in Kansas City and in St. Louis. In this way ample opportunity is offered for all teachers to attend at least one State meeting without undue expense. At the same time the inspiration and opportunity for state-wide acquaintance among educationists that only a large meeting affords is preserved. The Missouri organization now has 20,000 members. Attendance at the Kansas City meeting was estimated at 12,000.

Wonders of Modern Science Displayed Within Comprehension of Laymen

Exhibit of Carnegie Institution Shows Some of the Striking Results of Research of 22 Years. Millions of Diatoms Which Make Life in the Ocean a Possibility. Delicate Instrument Measures Heat of Zones of Mars. Center of Earth Composed of Nearly Pure Iron. Investigations of Compass Variations Valuable in Telegraphy. Tracing Weather Changes in Past Ages. Simple Method of Determining Nutrition Values

By JAMES F. ABEL
Assistant Specialist in Rural Education, Bureau of Education

A FURNACE within a microscope, a meteorite that contains small diamonds, beautiful minute diatoms that furnish food for animal life of the sea, a thermo-couple that measures heat from the farthest stars, a portable



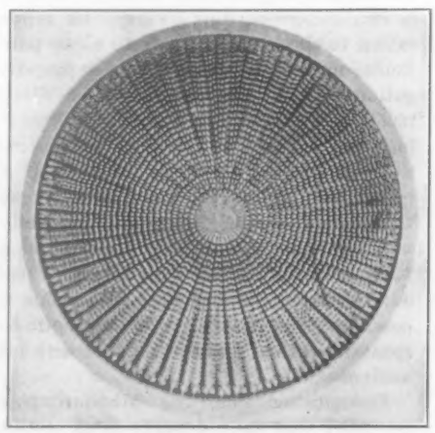
A form of diatom

seismograph that may be used in any high school, a simple machine to determine the heat units in foods, a gravity balance that makes it easier to measure the force of gravity, unique apparatus to find out how fast plants absorb and give off water, a spectroscope with a quartz lens that makes it possible to use the spectrum much farther out in the field of the ordinarily invisible ultra-violet rays of light, a globe bristling with 10,300 pins to show the places both on land and sea where observations have been taken on the earth's magnetic currents, an artistic replica of the nonmagnetic brigantine *Carnegie*, maps, charts, photographs, and models—these were a few of the very interesting and valuable things displayed by the Carnegie Institution of Washington at its annual exhibition in the administration building on December 13, 14, and 15 of 1924, and opened again in the latter part of the month for the meeting of the American Association for the Advancement of Science.

The exhibit was purely temporary, a "live" one intended to show some of the important work of the institution during the past year. Many of the new machines being used in scientific investigations were set up and in operation; plans of others were shown in drawings and charts, and all were explained by members of the research staff called in from the field and from various stations. Some one was at hand to answer in everyday language questions about all the things displayed. Even a layman could not help being absorbed in it, and a throng of visitors crowded the building during the entire time the exhibit was open to the public.

The room given over to diatom research drew many. Dr. Albert Mann explained to the curious that the diatom is a water plant, the smallest green plant in the world, only a few of the more than 8,000 species being visible to the naked eye. They inhabit all the waters of the earth. The outside of each diatom is a shell made of pure silica. Many of them are very elaborately ornamented and for that reason they are great favorites of students of miscroscopy, their varied and beautiful forms being a source of constant delight to the investigator.

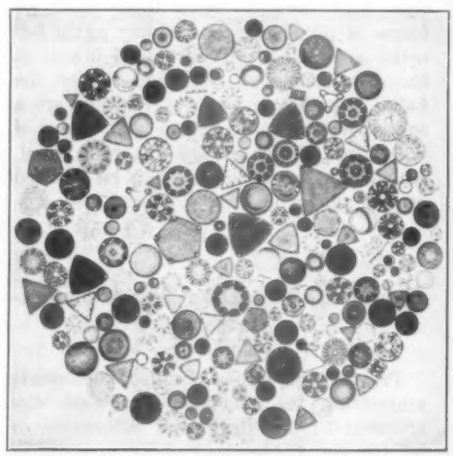
Living, they are necessary to the proper nutrition of all the animal life of the sea; they literally stand between it and starvation and, to go further, if it were not for them man would be without one of his chief sources of wealth. When



Another characteristic form

next you enjoy a shore dinner, thank the diatoms and think of the industry of fishing; how much of history, song, and story has been built around the toilers of the sea, and give credit for most of it to these invisible little plants that are always making it possible for the fishes to live. Their part is to take from the earth and water the necessary elements and change them to the compounds that animal life may use in their food.

Then, too, the diatoms, like the land plants, take in carbon dioxid and give off oxygen and so help to keep the water



A group of diatoms

filled with air for the fish to breathe. Moreover, they tell a great deal about the direction and flow of the ocean currents, for if one is careful about having a broad acquaintance with them he can take up a pail of water off the coast of Maine, let us say, and tell from the kinds he finds in it whether it came down from the Arctic Ocean or up from the Gulf of Mexico.

Fossilized diatoms are nearly as common as the living ones. There is one enormous bed of them covering 12 square miles, 1,400 feet thick at Lompoc, Calif., and the sales from there run well up into the millions of dollars a year. The material is used for different kinds of filtering, especially in refining sugar, for insulating, for polishing, and for making fire brick.

At the exhibit one moved only a few steps away from the diatoms to learn that the temperature of Mars is from 50° to 70° F. at its equator and about 80° below at the poles, and to hear Doctor Anderson explain how he knows that. He has devised a very simple and delicate instrument sensitive to one-millionth of a degree for measuring the heat radiation from an object. The heat rays pass through a rock salt lens and are thrown on a thermocouple so arranged that the electric current passing through it changes with the slightest change in the amount of heat coming through the lens. Any change in the current shifts a small mirror, and the image of a V-shaped light reflected in the mirror is thrown on a scale several feet away. As the mirror shifts, the light moves along the scale, and one may read the change in temperature. With this mechanism Doctor Anderson measured the heat from Mars and determined its temperature. Visitors amused themselves testing it with the radiant heat from their hands.

More Data Expected on Earthquakes

Doctor Anderson has also worked out and the institution has patented in his name a portable inexpensive torsion seismograph that accurately records earthquake shocks light or heavy. It may easily be set up in the basement of any good high-school building that is not too near disturbing influences such as the jar of street cars or trains. Three instruments, one to measure the vertical waves and one each for the north-south and east-west lines of the longitudinal waves are a complete set, but either of the two machines that respond to the longitudinal waves can be made worth while in a high school. The number of seismograph stations can now be greatly increased at comparatively small cost, and we may have from many more places much more data about earthquakes.

Star Catalogue Requires Millions of Figures

Cataloguing 30,000 stars, about twelve times as many as are visible to the naked eye, and giving their positions and directions and rates of motion is one of the large pieces of work carried on by the institution through its department of meridian astrometry. The knowledge gained in this way will help to determine the sun's motion, the number of stars in certain volumes of space, and the proportion of stars having certain velocities and directions of movement. Investigations that have never been possible because of lack of data may be made after the catalogue is completed. The amount of labor involved in thus finding and labeling our star neighbors is enormous; the mere working out of the problems calls for hundreds of millions of figures, to say nothing of the actual observations that must be made.

Neither fractions of seconds nor æons of time seem to appall the modern scientist. Photographs from the Mount Wilson observatory show how the laboratory there is producing light and heat much like that of the hottest stars. A fine wire is exploded in one thirty-thousandth of a second by a strong electric current and the photograph made of the spectrum from the light of the explosion notes changes as brief as one-millionth of a second. By such means we learn something of what is happening on other planets.

Accurate Astronomy in Ancient Yucatan

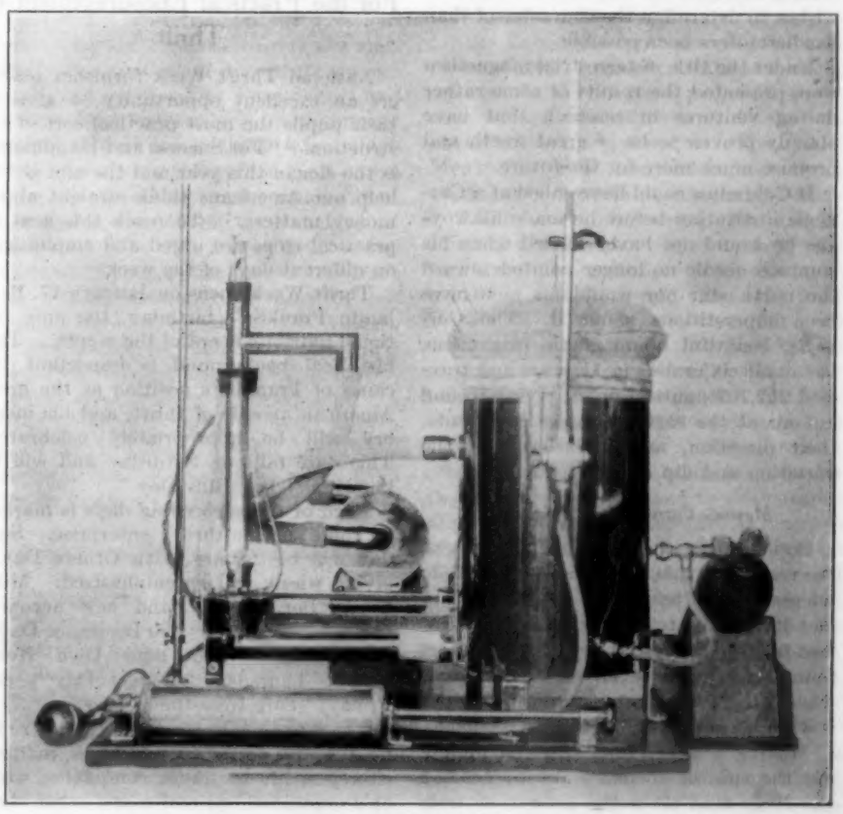
America was not without its astronomers in the century before the Christian era, and photographs and models of the cities founded and built by the Maya civilization in Yucatan and southern Mexico were a part of the exhibit. Here was a race, now almost extinct, with a system of writing and notation, an architecture dignified and beautiful, an accurate calendar, and ways of observing and recording astronomical phenomena. Mr. Morley, who has been studying the ruins for some 20 years, tells much of one of the principal Maya cities, Chichen Itza, in the January number of the National Geographic Magazine.

The geophysical laboratory presented a display of materials arranged to illustrate the structure and composition of the earth. Dr. H. S. Washington, in charge, told those who asked him that we know the interior of the earth is solid because our planet has been weighed and because if it were not solid it would not withstand the terrific pull of the sun and moon nor revolve in the way it does. It has been found, partly by noting the different rates at which earthquake shocks travel through and around the earth, that its central part, making up about one-sixth of its entire volume, is a solid metallic iron core extending out to within about 1,000 miles of the surface. A model representing a segment of the earth from center to circumference showed the central core and the gradual change from pure, or nearly pure, iron through iron more and more mixed with other materials until the crust of the earth, not more than 35 miles thick, is reached and the proportion of iron is comparatively small.

Other Planets Have Metals Like Ours

Specimens of meteorites, one of them containing small diamonds, illustrating the different gradations from the pure iron in large crystals formed under heavy pressure to the lighter kinds of geological formations, were arranged in order to indicate that something similar to our earth exists in other planets.

No less interesting was a cross section of a platinum crucible which with its contents had been raised to 1,420°, produc-



A new form of calorimeter

ing artificially conditions like those existing in molten lava and showing what happens when the mass cools. Parallel to it were specimens of the heavy rocks rich in magnesium and iron—two of the four elements that constitute 90 per cent of the earth—made up of the first formed crystals that settle out and collect at the bottom of the lava pool; of the lighter stones that gradually crystallize out as the liquid loses its more common elements; of pumice formed if the crust over the molten lava breaks, an explosion occurs, and the expanding gases blow the lava into a rock froth; and, if no explosion occurs, of the final deposit from the water of such minerals as gold, silver, and copper in veins or ores.

Delicate Instruments for Volcanic Material

For examining small amounts of volcanic material and finding out what is in them the institution had on display two unusually fine and delicate instruments. One of these is a microscope containing a tiny furnace that may be heated up to 800° C. The material is placed in the furnace and the electric current which heats it is turned on and off at the will of the operator. He may then see, magnified 250 diameters, what happens as the substance melts and cools. The other is a spectroscope fitted with a quartz lens which allows the ultra-violet rays of light to pass through and permits a much more careful analysis of substances that one wishes to determine the character of than has heretofore been possible.

Under the title of terrestrial magnetism were presented the results of some rather daring ventures in research that have already proven to be of great worth and promise much more for the future.

If Columbus could have called at a Carnegie institution before he made his voyage he would not have worried when his compass needle no longer pointed toward the north star nor would his men have been superstitious about it. The *Carnegie*, beautiful nonmagnetic brigantine, has made six cruises in 11 years and traveled 252,702 nautical miles, trying to find out about the earth's magnetic currents, their direction, and intensity, and the variation and dip of the needle.

Magnetic Currents Affect Telegraphy

Besides being of great value to mariners, the results of this work may be useful to telegraph and telephone companies. In fact it was the telegraph companies that first became interested in it, for operators found that during severe electrical storms when "there was an aurora on the wire" it was almost impossible to send messages.

Making weather forecasts and finding out the ages of ancient ruins by reading the rings that show the growth of trees year by year was illustrated with a cross section of a redwood tree 3,100 years old. Meteorology is a new science. We have not been keeping records of the weather for very many years, but if we are to know the longer cycles of climatic changes we must have some kind of careful accounts of what the weather has been, and the giant trees of California and some of the cedars of Lebanon furnish the records.

Rainfall Shown by Growth of Trees

By studying the pine trees of northern Arizona and comparing the yearly growth as shown by the rings with the known rainfall for some years back, Mr. A. E. Douglass found a very remarkable correspondence between the growth the tree made in any year and the rainfall for that year. A year that was unusually dry or unusually wet left its traces plainly in the trees. It is possible then by studying the rings in very old trees to determine the series of years in which there is average, heavy, or little rainfall, and to find out whether those periods follow each other in any regular order.

Not only can something of the climatic cycles for 3,000 years or more be found out in this way, but by studying the rings in the timbers of ancient ruins and comparing them with the rings on old trees it has been possible to tell when the tree was cut to make that timber. Nature told her story in the tree trunks. The Department of Climatology is reading and interpreting it.

"Half a doughnut will furnish the extra energy a person needs to climb to the top of the Washington Monument," Mr. Edward L. Fox, of the nutrition laboratory, said in explaining the use of a very simple calorimeter that is merely an addition to the respiration apparatus commonly used in hospitals and laboratories. Most foods are so complex that their heat value in calories can not be worked out mathematically.

Other things than those mentioned were to illustrate the experiments in plant physiology carried on in Arizona and California; the very careful studies in embryology made in connection with the Johns Hopkins Medical School; photographs of original materials used in the study of ancient languages and writing; apparatus showing how light and wind change the rate of water loss from plants; the results of work in determining the atomic weights of elements; charts showing growth curves of animals on special diets; and maps and copies of documents that have a direct bearing on American history and are found in the archives of foreign countries.

The institution began its work in 1902. In 22 short years it has accomplished some splendid things in science and laid the foundation for many more.

For the Practical Encouragement of Thrift

National Thrift Week furnishes teachers an excellent opportunity to give to their pupils the most practical sort of instruction. "For Success and Happiness" is the slogan this year and the aim is "to help our Americans think straight about money matters." To reach this goal 10 practical steps are urged and emphasized on different days of the week.

Thrift Week opens on January 17, Benjamin Franklin's birthday, the only national patriotic event of the month. This historical background is important because of Franklin's position as the great American apostle of thrift, and his memory will be appropriately celebrated. This date falls on Saturday and will be known as "Pay Bills Day."

Each of the succeeding days is marked by some specific thrifty enterprise. Sunday will be "Share With Others Day"; giving wisely will be emphasized. Monday, "Bank Day," and new accounts opened. Tuesday, "Life Insurance Day"; Wednesday, "Own Your Own Home Day"; Thursday, "Budget Day"; and Friday, "Safe Investment Day."

The movement is fostered by the Y. M. C. A. and indorsed by educators, realtors, churches, life insurance companies, women's organizations, and many other civic, industrial, educational, and religious organizations. Thrift messages will be sent "over the air" from every part of the country. Meetings will be held in factories, churches, and schools, with speakers chosen from the leading citizens.

In the schools the week will be observed by essay contests, thrift talks, visits to the banks, poster contests, special talks by pupils, bank book parades, and many other means to arouse enthusiasm among the school children and leave with them a lasting impression. A leaflet called "Seven Days with a Purpose," with 10 points listed under each day, has been prepared by the National Thrift Committee, and this with a package of school materials, including posters, budget books, topics for essay work, and a folder of suggestions for school programs may be procured from John A. Goodell, executive secretary, 347 Madison Avenue, New York City.

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The Vocational Education Association of the Middle West will hold its eleventh annual convention at the Hotel Sherman, Chicago, February 12–14, 1925. Especial emphasis will be given to junior high schools. Lewis Gustafson, of St. Louis, is president of the association.

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The annual meeting of the National Congress of Parents and Teachers will be held at Austin, Tex., May 11, 1925.

Plan of Consolidation for Cleveland's Higher Institutions

Survey Commission under Auspices of Cleveland Foundation Suggests New University Corporation Combining Western Reserve University and Case School of Applied Science. Extensive Enlargement in Educational Facilities is Proposed

By GEORGE F. ZOOK
Chief Division of Higher Education, Bureau of Education

WHETHER two institutions, Western Reserve University and the Case School of Applied Science, which have grown up beside one another but developed independently, can join in some form of permanent cooperation in order more nearly to supply the desired quantity and range of higher education in Cleveland, Ohio, is the central theme of a survey in that city which has been carried on during the past six months by a survey commission under the direction of George F. Zook. The other members of the survey commission were President W. A. Jessup, University of Iowa; Chancellor S. P. Capen, University of Buffalo; President R. L. Hughes, Miami University; Dean F. L. Bishop, University of Pittsburgh; Prof. C. J. Tilden, Yale University; Prof. L. V. Koos, University of Minnesota; Miss Emeline S. Whitcomb, United States Bureau of Education.

Existing Institutions to Retain Independence

To bring together these two institutions into some cooperative organization and yet to preserve the initiative that accompanies independence was a difficult problem. The survey commission attempted to solve the problem by recommending the formation of a new university corporation to be composed of representatives from Western Reserve University, the Case School of Applied Science, and such other institutions as may wish to enter the enlarged university organization, together with certain representatives at large, selected by the representatives of the constituent institutions. It was suggested that the new university corporation should have charge of certain general service activities, such as the care of buildings and grounds, heat and light, central library, gymnasium, and the treasurer's, comptroller's, and registrar's offices. It was also recommended that the responsibility of conducting certain educational work of common interest to the two institutions, as, for example, evening school work, summer school, the graduate school, research, and the new university college for work in liberal arts preliminary to law, medicine, engineering, and so forth, should be lodged with the enlarged university. Also, certain of the new divisions which were recommended, namely, a school of education and a school of civic and business education, it was thought would be more at home under the enlarged university organization than under either of the constituent institutions.

If the enlarged university organization is adopted it will be necessary to select a chancellor or president who may or may not be the president of one of the constituent institutions.

Under this plan of organization each of the constituent institutions will continue to have entire charge of all of its assets, the selection of its officers and faculty, including its president, and all entrance and graduation requirements, but each will join with other institutions in matters of common concern. In this way it is believed that certain educational and financial economies can be secured, while preserving the initiative and historical traditions of the constituent institutions.

One of the most troublesome questions confronting the commission was the matter of the location of the proposed enlarged university. The Case School and Western Reserve were built on the present sites at a time when there was only a small liberal arts college for men and a technological institution for what was at that time a city of 160,000 inhabitants. Since that time the liberal arts college (Adelbert College) has grown to more than 700 students, and a number of new divisions have been established in Western Reserve University, namely, a liberal arts college for women, a school of dentistry, a school of pharmacy, a library school, a school of applied social sciences, and a school of nursing. In the meantime, Cleveland has grown in population from 160,000 to approximately 1,000,000.

Devote Present Athletic Grounds to Building

It is apparent that it will be impossible to accommodate in the present buildings of the Case School and Western Reserve University the large number of students who will naturally be drawn into the enlarged university. Consequently, in order to accommodate these students, it would first be necessary to use the present athletic grounds for building. It also seems clear that a number of the existing buildings sooner or later will have to be replaced with larger and higher structures and, finally, that as much land as possible adjoining the present campus should be secured. Inasmuch as most of this land is expensive and not well suited to university purposes, the commission ultimately reached the conclusion that, if possible, a new site adequate in size for all future needs of the enlarged university should be secured. Only in this way does it seem possible to plan an enlarged university with adequate space for buildings and playgrounds.

Inadequate Facilities for Higher Education

The thing which impressed the survey commission most deeply was the fact that contrary to the situation in most other great cities of the country, Cleveland is very far from having adequate facilities for the residents of the city who wish to attend higher institutions. Two-thirds of the public and private high-school graduates in the city go elsewhere to college, yet the student constituency of the two institutions is becoming more localized all the time. These facts point clearly to the conclusion that Cleveland is not supplying adequate facilities in higher education for its residents, nor are students from outside of the city coming in such proportions as formerly. A comparison with other cities shows that approximately 16,000 students should attend college in Cleveland, whereas there are fewer than 4,000.

The lines of work which seem in greatest need of development are evening schools on a collegiate plane, business and civic administration, education, graduate work, and research. The Young Men's Christian Association has shown what can be done in evening school work in the city, but much remains to be done. The lack of a school of business is astonishing when one considers the important industries and business organizations of Cleveland. Teacher training for the elementary schools and the junior high schools has been cared for by the Cleveland School of Education, but the facilities in the city for training secondary school teachers are entirely inadequate. A school of education to train teachers for the secondary schools and to offer graduate work is urgently needed. As a means of rounding out the efforts of the proposed university the commission recommended the establishment of a graduate school and two separate research bureaus, for industrial research and for business research, respectively.

Coeducation of Sexes Now Opposed

Another problem which required extended consideration related to liberal arts education. There are two colleges, one for men and one for women, and the

idea of educating the sexes separately in undergraduate schools is strongly favored in Western Reserve University.

At the same time it is apparent that there is a distinct problem in caring for students who wish to follow a liberal arts curriculum through to graduation, as compared to the very large group of students who wish only one, two, and three years of liberal arts work in preparation for entrance to a professional school, such as law or medicine. The commission recommended that for the latter there should be established a university college and that the existing liberal arts colleges should be limited to approximately 500 students each. The efforts of the two existing colleges will be directed toward the education of the students who wish to pursue four-year curricula in liberal arts.

If this plan proves successful, additional units of approximately 500 students may be added as there is demand. On the other hand, the university college, which is to be coeducational and without limit in numbers, may prove to be the popular avenue for liberal arts education. It is recommended that all the science laboratories be centered in the university college.

Establishment of Great University Anticipated

Much has already been done to popularize the findings of the survey, which was conducted under the auspices of the Cleveland Foundation. During October a series of open luncheon conferences were addressed by members of the survey commission. The conferences were largely attended by many of the most prominent Cleveland citizens, and they received the commission's findings very cordially. Since that time the Cleveland newspapers have carried a series of special articles showing the progress in higher education which has been made by other large urban centers such as Chicago, Boston, Buffalo, Rochester, Philadelphia, Pittsburgh, and New York. At present representatives from a number of educational institutions in the city are holding a series of meetings under the leadership of President Vinson, of Western Reserve University, to consider the commission's plan or any other feasible plan for bringing the institutions together in some permanent form of cooperation. The situation bids fair to produce in Cleveland a great university which will be a climax to the city's excellent school system and to the many civic monuments in which Cleveland justly takes a great deal of pride.

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Beginning in February, 1925, all students of New York schools who are under 17 years of age at the time of their discharge from school will be required to attend a continuation school until 17.

To Promote Cultural Relations Between Czechoslovakia and France

University Professors will be Exchanged and a Joint Commission Established to Further Other Means of Cooperation. Coordination of Degrees and of Studies Included in Duties of Commission

By C. S. WINANS
American Consul General, Prague

AN AGREEMENT, or treaty, designed to promote the educational, scientific, and cultural relations of Czechoslovakia and France has now been put into effect, with an exchange of university professors between the two countries and the organization of a commission for the study of scientific, educational, and cultural matters in the two countries.

This commission is really a joint commission, one section of which has its headquarters in Prague and the other in Paris. Each subcommission is composed of 11 members, 10 of whom are appointed for each country by the respective ministry of education, with the advice and consent of the ministry of foreign affairs, while the eleventh member must be a representative of the other country. A list of the French members must be presented to the Czechoslovak ministry of foreign affairs, and of the Czech members to the French ministry, for approval. At present, the activities of the subcommissions will be limited to effecting an exchange of professors, the establishing of scholarships, the conferring of degrees, and the granting of credits for studies pursued in the universities, or other educational institutions, of either country. The subcommission in Prague will also serve the Czechoslovak ministry of education in an advisory capacity.

One clause of the agreement provides for an exchange of scientists, even if they have no special function to perform in the official educational system of either country. They must, however, be members of scientific societies and experts in their particular lines of work or investigation.

The exchanged professors will lecture for one semester only, for an entire year, or, at the request of the commission, for a longer period. The work done by these professors will have due weight in their own countries, with respect to their terms of service, priority, and promotions. They will also be entitled to the same privileges enjoyed by the professors at the university or other educational institution to which they may be sent, excepting only those privileges connected with the administration of the institution. The salaries and allowances of the exchanged professors will be determined by the regulations in force in their respective countries, and they will also receive special post and transportation allowances from the respective ministries of education.

As a rule, studies pursued in France or Czechoslovakia will be credited in the home country, and university, college, and high school students will be able to receive their degrees and certificates from the other country, if they comply with all of the conditions governing the native students.

Official report to Secretary of State.

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Chicago Playgrounds Encourage Winter Activities

Snow sculpture is a sport which has been developed to an unusual degree on the board of education's playgrounds in Chicago. All playgrounds competed in modeling snow figures, and the results were judged by the city's distinguished sculptor, Lorado Taft.

Water was mixed with the snow to form a heavy slush. The work of modeling was done with wooden paddles, the snow first being packed on a framework of sticks tied together. Pieces of tin and heavy pocket knives were used to carve away excess and secure the lines and contour desired.

Left to their own devices to select subjects, the children worked out a variety of figures. Included in the sculptural productions was an elephant holding his own against an attack by three wolves, various other animals, a set of overstuffed furniture with a fireplace, battleships, and castles.

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Costs Englishmen Nothing to Become Dentists

Maintenance allowances, instruments, books, and fees are provided for qualified persons in the United Kingdom who wish to study dentistry and lack personal means of doing so. This statement was made recently at the seventh session of the dental board of the United Kingdom by F. D. Acland, the chairman.

There is, he said, probably no other profession in the country into which a student qualified to take advantage of professional training may obtain entry practically without cost to himself.

Pittsburgh's Cathedral of Learning to Be Truly a Higher Institution

Building 680 Feet High Will House 12,000 Students. Abundant Recreation Rooms for Faculty and for Students. Class Rooms Will Be Free from All Suggestion of Stiffness. Elevator Facilities Will Be Ample

By W. DON HARRISON
Professor of English, University of Pittsburgh

THE PLAN of the University of Pittsburgh to erect a 52-story cathedral of learning to house all of its schools except those of medicine and dentistry has in it, besides its architecture, some valuable ideas. The building, with supreme force, will express by its mass and proportion the meaning and the spirit of the educational work which is to be carried on in it.

The structure is to be a Gothic building of Kentucky limestone, rising from a base 360 feet long and 260 feet wide to a height of 680 feet. Its cost will be about $10,000,000. It will be erected in a 14-acre quadrangle situated in the civic center of Pittsburgh. In the building, 12,000 students will be provided with classrooms, laboratories, shops, libraries, and recreation centers.

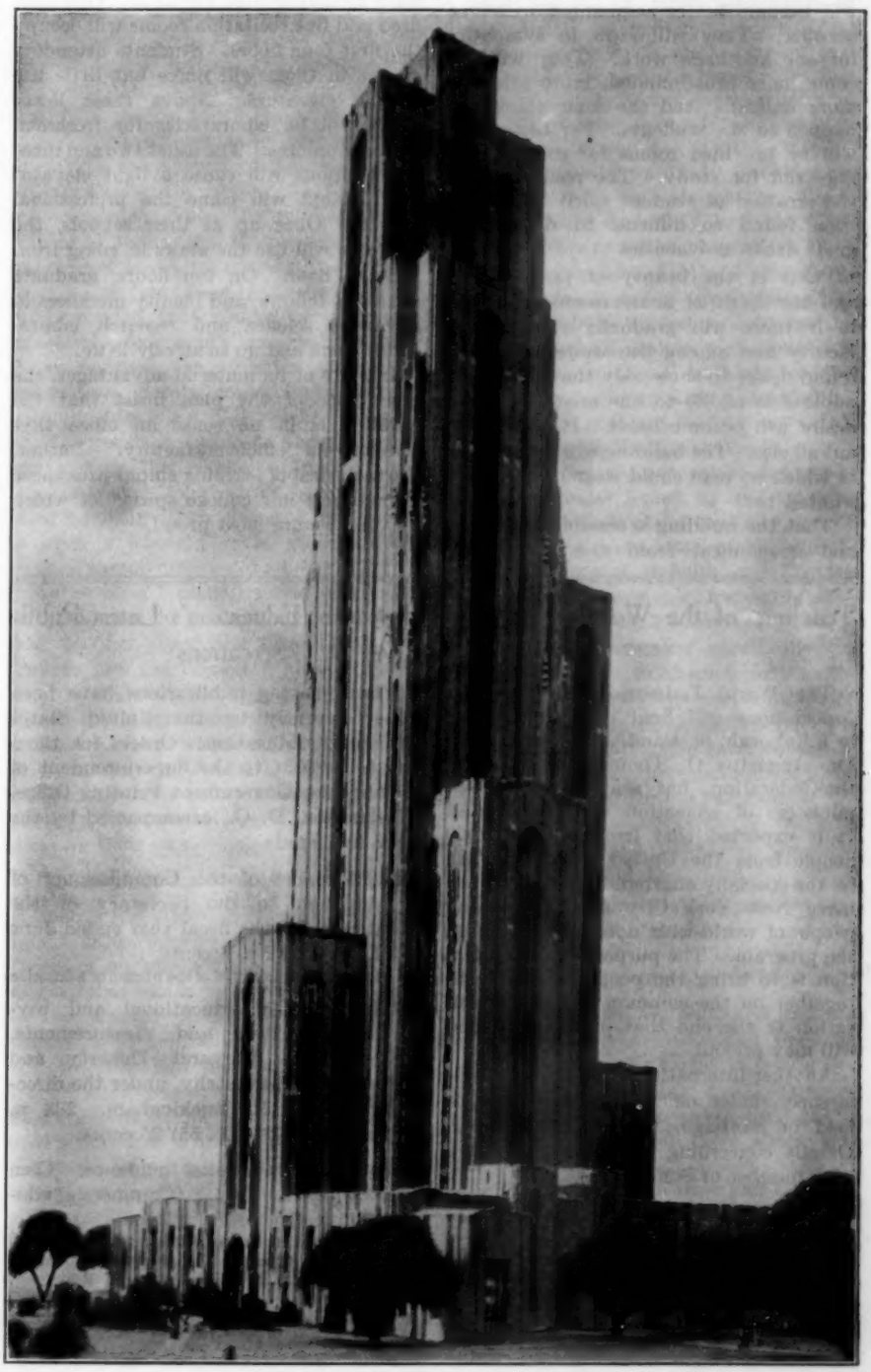
The fundamental purpose of the cathedral of learning, Chancellor John G. Bowman says, is, of course, to provide in a lasting and economical way space needed by the university. In addition, the building is to express to the students, the faculty, and the community the meaning of education. One vital purpose of a university is to form in boys and girls habits of clear, creative thought. The prize of it all is the spirit of achievement. To express this spirit, then, with such force that it lifts the idea to the level we know as sublime, is the reason for the height of the building. It will interpret beauty, wonder, spiritual fineness, and, above all, creative courage to 12,000 students, to the faculty, and to about 150,000 persons who will pass it each day. The building will say to them: "Life, beautiful, creative life, is yours to live and to give to others. Do it."

An Inspiration to All Classes in Community

Chancellor Bowman and the men associated with him in the plan believe that the building will make the community realize how precious a thing it is to rise to one's full mental and spiritual capacity. Fathers and mothers have, through the centuries, endeavored to create some plan by which their boys and girls might do this. They want those boys and girls to be creative, decent at heart, intelligent, sensitive to beauty, glad to serve their fellows. To inspire all classes of people in the community with this idea is the purpose of the building's architecture.

Educationally, the interior of the building is to be just as significant. To begin with, there is not to be a single barren, ugly, recitation room, with rows of cheap chairs. It is planned to make each room beautiful; to make it resemble a private study in a home. The chairs are not to be in rows, and they are not to be alike. The best chair in each room is to be for the master, who will occupy it, not by virtue of his position, but by virtue of his intelligence, his character, and the high motive of his life. On the walls are to hang pictures—good ones—appropriate to the subjects studied in the rooms.

"In such a setting," says Chancellor Bowman, "considering all the inside and the outside of the building, we can start initiative in the lives of students that will carry them with speed toward great accomplishment. Every student will be



The proposed "Cathedral of Learning" at Pittsburgh

a crusader for some purpose that has service in it. If students have half a chance, they are more interested in making their own lives beautiful and creative and useful than in dances and parties."

The centralization of the university in one building will make for greater educational unity. Concerning this unity Chancellor Bowman says:

"The accessibility of one department to another and the common meeting ground for faculty members in clubrooms will bring together men from various schools and departments. These men will become better acquainted with one another. They will grow in sympathy for one another's work. They will become more broadminded, more tolerant, more unified. And the same thing will happen to the students. For them, too, will be provided rooms for social meetings and for study. The result will be the creation of student spirit which has been found so difficult to develop in great urban universities.

"Out of the beauty of the building and the spirit of achievement expressed in it there will gradually rise, in the faculty and among the students, a profound desire to show only the decent and noble side of life to one another. That desire will become habit. It will crowd out all else. The building will be a temple in which no man could wear his hat if he wanted to."

That the building is feasible, practical, and economical from the engineering standpoint, Mr. Charles Z. Klauder, the architect, and the consulting engineers have pointed out. In the first place, they indicate that the sway of the building in the wind, a disadvantage in many high buildings of small base, will be practically negligible. The large base and the placing of columns will prevent any except a slight sway in the most violent wind.

The elevator problem is simpler than it is in a large office building. To maintain service that will not keep any student waiting more than 61 seconds will require eight moderate-sized elevators. One hundred and five recitation rooms will occupy the first four floors. Students attending classes in them will make but little use of the elevators. Above these lower floors will be laboratories for freshmen and sophomores. The usual two and three hour periods will cause a light elevator load. Next will come the professional schools. Once up at their schools, the students will use the stairs in going from floor to floor. On top floors, graduate students, fellows, and faculty members in advanced science and research laboratories come and go relatively little.

In spite of its material advantages, the men back of the plan insist that the building is in no sense an office skyscraper—an "efficiency factory." Rather, the cathedral of learning emphasizes those very things in "college spirit" of which universities are most proud.

Teachers of the World Will Convene

The World Federation of Education Associations will hold its next meeting in Edinburgh, Scotland, July 20–28, 1925. Dr. Augustus O. Thomas, president of the federation, has sent invitations to ministers of education in all countries. It is expected that from 800 to 1,000 people from the United States will sail on the specially chartered liner which will leave New York City July 10. Many people of world-wide note will appear on the program. The purpose of the federation is to bring the people of the earth together on the common ground of education to the end that justice and good will may prevail.

Another international educational conference, under official auspices, will be held in Santiago, Chile, in September. Details concerning it will appear in a later number of SCHOOL LIFE.

"Better men for the jobs, better jobs for the men," is the slogan of the working men of Buffalo, N. Y., from 4,000 to 5,000 of whom are registered in the technical and trade courses of that city.

Bureau of Education's Latest Publications

The following publications have been issued recently by the United States Bureau of Education. Orders for them should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C., accompanied by the price indicated:

Annual report of the Commissioner of Education to the Secretary of the Interior, for the fiscal year ended June 30, 1924. 32 p. 5 cents.
Report of the activities of the Bureau of Education

Bibliography of educational and psychological tests and measurements. Comp. by Margaret Doherty and Josephine MacLatchy, under the direction of B. R. Buckingham. 233 p. (Bulletin, 1923, no. 55) 25 cents.

Cooperative vocational guidance. Glen L. Swiggett. 12 p. (Commercial education leaflet no. 8.) 5 cents.
Report of a conference held at the Peirce School of Business Administration, Philadelphia, in cooperation with the U. S. Bureau of Education, April 21, 1923.

Coordination of business preparation and placement. Glen L. Swiggett. 16 p. (Commercial education leaflet no. 10.) 5 cents.
Report of the third commercial education conference, held under the auspices of the U. S. Bureau of Education and the Eastern Commercial Teachers' Association, New York, April 18, 1924.

How the kindergarten aids children's progress in the grades. Nina C. Vandewalker. 6 p. (Kindergarten circular no. 17.) 5 cents.

List of references on vocational education. 20 p. (Library leaflet no. 25.) 5 cents.

Milpitas—a rural school project in teacher training. Clara H. Smith and La Rae Olvey. 19 p. (Rural school leaflet no. 27.) 5 cents.

Orange township consolidated school, Black Hawk county, Iowa. Macy Campbell. 6 p. (Rural school leaflet no. 30.) 5 cents.

Organization and administration of the duplicate school in Philadelphia, Pa. Edwin Y. Montanye. 16 p. (Bulletin, 1924, no. 24.) 5 cents.

A platoon school in Kansas City, Missouri. G. W. Diemer. 25 p. (Bulletin, 1924, no. 25.) 5 cents.
Contains: I. The platoon school defined. II. Growth of platoon school movement. III. Reasons for platoon organization. IV. Organization and administration illustrated by the Henry C. Kumpf School, Kansas City, Mo. V. The platoon school program. VI. Advantages and disadvantages as expressed by teachers.

Record of current educational publications, comprising publications received by the Bureau of Education to June 1, 1924. 69 p. (Bulletin, 1924, no. 27.) 10 cents.

School health supervision. Report of a conference at Detroit, October, 1923. Harriet Wedgwood. 18 p. (School health studies no. 8.) 5 cents.
Contains: 1. The school child as a carrier of public health, by Frances S. Bradley. 2. The preschool age and school entrance, by Arnold Gesell. 3. Training teachers for health work in rural schools, by Elma Rood. 4. Health supervision of city school children, by William DeKleine.

Some practical uses of auditoriums in the rural schools of Montgomery county, Alabama. Lillian Allen and Cora Pearson. 10 p. (Rural school leaflet no. 34.) 5 cents.

Statistics of State universities and State colleges for the year ending June 30, 1923. 15 p. (Bulletin, 1924, no. 26.) 5 cents.

Take no risks. J. F. Abel. 5 p. (Rural school leaflet no. 31.) 5 cents.
Deals with the transportation of children to and from school. Urges that no risks be taken with children's lives and health.

Technique of procedure in collegiate registration. George T. Avery. 26 p. (Bulletin, 1924, no. 22.) 5 cents.
Contains: 1. Inefficient methods still used. 2. Points of agreement among registrars. 3. Methods most commonly used. 4. Analysis of typical plans. 5. Some helpful suggestions. 6. Recommended registration plan.

Let the Children Advance According to Individual Ability

Hard and Fast System of Grading Which Once Prevailed Has Practically Disappeared from American Schools. William T. Harris Leader in Movement for Freedom. Many "Plans" Have Left Their Influence

By WALTER S. DEFFENBAUGH
Chief City School Division, Bureau of Education

TOO MUCH listening and not enough doing characterizes many a school. If the listening were attentive and if everything said in class were worth hearing, a pupil might in time become educated—or at least informed. In most recitations he hears numerous questions asked and answered; he hears other pupils tell what they have read; he himself may be called upon to answer a question or two. The recitation period may be taken up by the teacher in telling what she has read or what her opinion is on certain questions. She may even become dogmatic in her teaching. Under all such instruction the children are mere passive recipients, not active doers as they should be.

In schools as usually organized there is but little time for a pupil to do any studying. He may have but one or two study periods a day, the remainder of the time being spent in recitations, where he becomes a listener. In a class of 30 pupils no one pupil can himself contribute much more than a minute's time to the discussion of the lesson. The question is what is he doing the remainder of the period. The supposition is that he is listening, but is he? And if he is, could he not be more profitably employed?

To Avoid Clinkers and Sluggards

These are some of the defects of the class method of instruction, but there are other defects. Pupils differing greatly in capacity are held to the same pace. Some fail and have to repeat a year or a half year's work. They become the "clinkers" in the school system. The slower children, nagged and threatened with failure, become discouraged, while the brighter children, not having enough to do to keep them busy, form bad habits of study and the habit of laziness. They get the notion that any task may be accomplished without work; that their brilliancy will carry them through. The poorer pupils of the class are strained to the utmost and are literally dragged through school. The child who ranks midway between the dullest and brightest, seeing pupils gaining promotions with a mere passing grade of 70 or 75, with work only three-fourths perfect, and other pupils getting through with little effort, is tempted to follow the example set by the brighter children.

All the faults of the class system have been dwelt upon from the time the graded school system was inaugurated. In 1868, Dr. Wm. T. Harris, in his report to the St. Louis Board of Education, called attention to the evils inherent in the system that holds pupils of all degrees of ability to the same requirements. Since the publication of Doctor Harris's report many attempts have been made to remedy the defects that have just been enumerated. He recommended that classes be organized with only five weeks' interval between them so that the brighter and more industrious pupils could be advanced without skipping a half year's work and so that pupils not able to sustain themselves with the classes to which they were assigned could drop back to the class below without losing a half year, or even a whole year in those schools having annual promotions.

All sorts of "plans" have been tried to break the "lock step." Among these may be mentioned the Cambridge, the Denver, and the Elizabeth plans. There was the Batavia coaching plan, and the Pueblo individual instruction plan. None of these was ever widely adopted. Traces of them may be found in some school systems to-day, but the originators of these plans would scarcely recognize them as their own.

Interest in Individual Instruction is Increasing

Even if the attempts to break the lock step and to remedy the defects of instruction en masse have not proved as successful as was hoped by the originators of the several plans, efforts have not ceased to reach the individual pupil and to have him progress through the schools at a pace suited to his ability. There is to-day more interest in individual instruction and in means of breaking up the lock step than ever before. The homogeneous grouping of pupils, supervised study, special classes for subnormal and supernormal children may be cited as examples of the efforts in this direction.

Several plans of individual instruction that have attracted wide attention may be mentioned. One of these plans originated at the State Teacher's College, San Francisco, and has been adopted in other places under city school conditions. Winnetka, Ill., has given the plan the most thorough trial.

"Dalton Plan" Widely Known in England

Another plan of individual instruction, known as the Dalton plan, originated at about the time Winnetka began its experiment. The Dalton plan has been more widely adopted in England and other European countries than it has in the United States. A large association of Dalton school teachers and principals has been formed in England, so popular and widespread has the movement become in that country. Among the schools in this country that have adopted the plan may be mentioned the South Philadelphia High School for Girls, Philadelphia Trade School, the Manhattan Trade School of New York City, and the Children's University School, New York City, under the direction of Miss Helen Parkhurst, the originator of the Dalton plan.

There is some difference between the Winnetka and the Dalton plans, but each has been so modified in some of the schools experimenting with individual instructors that it is not easy to say which plan is followed the more closely.

At Winnetka the general plan, according to a circular issued by the superintendent of the schools of that city, is:

First. A reconstruction of the curriculum in terms of definite and specific objectives. For example, instead of saying that children shall learn column addition in third grade, say specifically "a child who finishes third-grade arithmetic can (among other things) add columns of five digits high and three digits wide, containing all of the fundamental combinations, at the rate of three columns in three minutes, with 100 per cent accuracy.

Second. The construction of tests to cover each specific objective, the test being complete and diagnostic.

Third. The preparation of practice material leading up to these tests.

Social Activities Replace Class Recitations

Class recitations are abolished, but socialized activities are provided, such as discussions of real problems in civics, the dramatization of history and geography materials, auditorium assemblies, group projects. The program gives about half of each morning and half of each afternoon to individual work, the other half to group and creative activities.

The teachers keep track of each pupil by the use of a goal record book in which the specific objectives of each subject are listed, and the children's names. Each child has an individual goal book which

is taken home each month in place of report cards so that parents may keep track of their children's progress.

The Dalton plan provides for the assignment of jobs covering about four weeks' work. This plan may be used without any change of curriculum or specially adapted textbook. The job assignments may consist of so many pages in the text or of certain topics. Whenever a pupil has completed all his contracts he is given a new assignment. Class conferences are held once or twice a week at certain periods of the day. At other times the pupils are free to go to any classroom or subject laboratories as they are called. If a pupil wishes to study history, he goes to one of the history laboratories for consultation with the instructor, or to join a group working on some particular problem. Tests are given the pupils on these contracts. No new contracts are assigned until all the contracts for the month are completed. A pupil may arrange his own study program practically as he pleases. He may work several hours at a time on mathematics; he may finish one contract within a week or two and be an entire month on another contract. The plan no doubt works best when applied to the entire school, but individual teachers report successful use of the plan when it is not in operation in the entire school. A teacher of English may use it to the extent of assigning contracts. Of course there would not be the freedom under such an arrangement as in a school using the plan in every department.

Both Doubling and Skipping Are Evils

It is not the purpose of this article to evaluate either of these plans. They must speak for themselves, but there are several reasons why some individual instruction plan should be adopted by the schools of the country provided, of course, that sufficient socialized activities are provided. Under an individual instruction plan no pupil is required to repeat a grade. There is no doubling back; there is no skipping of a grade or a part of a grade. It is one step after another; no retreat; no forward jumps. By such a plan it is evident that the bright pupil can complete the course a year or two ahead of time or, if preferred, his course may be greatly enriched. He can complete the course without any abrupt jumps. The slower pupil may be delayed a year in completing the course, but he has been moving forward all the time.

Studies made by Dr. Frederic Burke and others of the results of individual instruction show that:

1. The slowest children are less slow than where they have to repeat grades.
2. The fastest children can do eight grades in five or six years.
3. The great bulk of children can either do eight grades in six or seven years, or if they take eight years they can have more than ordinary schools give for group and creative activities.
4. Children are more interested in their work, making discipline easier.
5. The work is done more efficiently.

Studies made in England of the Dalton plan confirm the studies made in this country of the results of individual instruction. The Dalton plan has however, been confined more generally to high schools. One of the results of the plan which was introduced this last September into the South Philadelphia High School for Girls has been that the library has been used five times as much as it was under the traditional plan. Further data on the results of the plan in that school will be given after it has been in operation one or two semesters.

That all of the experiments in individual instruction now going on in this and other countries promise much is evident from the studies thus far made of them. At least all such experimentation should be encouraged so that a way may be found of breaking the "lock step" in our schools.

The Bureau of Education of the Department of the Interior has been invited to take part in the education court of the New Zealand and South Seas International Exhibition, to be held at Dunedin, 1925–26. The exhibition is international in scope and is under the official authority and patronage of the New Zealand Government.

At the instance of the General Secretariate of the League of Nations, the Danish Ministry of Instruction has established a national commission which is to work for intellectual cooperation between Denmark and other countries. The members of the commission are appointed for five years.—*John Dyneley Prince, American minister, Copenhagen.*

System of Informal Education Developed in Oklahoma

"How to make available much-to-be-desired educational opportunities to the great unreached public," was one of the problems discussed at length at the second national conference on home education at the University of Minnesota last spring, according to the report of proceedings recently issued by the Department of the Interior, Bureau of Education.

This problem has been studied in State universities, schools, and libraries, and by other agencies from time to time. In Oklahoma, the problem has been studied by the State library commission. The result of this study has been the development of a system of informal education, usable in the home, in the shop, nights, holidays, and during spare minutes snatched from necessary daily work. Consideration was given to classified groups, such as women's study groups, union labor groups, agricultural groups, cotton grower's groups, and many other groups of varying interests. Provision for some of these groups was made by the adoption of the home reading courses of the Bureau of Education by the State library commission. The secretary of the commission was appointed by the Secretary of the Interior as a special collaborator of the Bureau of Education to conduct the reading courses in Oklahoma.

The Oklahoma Board of Education, at the same time, adopted four of these reading courses in lieu of a State reading course. The board offers school credits to readers who complete these courses under the guidance of a high-school teacher.

To meet the demand for the books, because of the scarcity of libraries, the library commission purchased all of the books in the courses, and for the most popular courses from 5 to 50 copies of each book were purchased. This made the books available to readers immediately upon application.—*Ellen C. Lombard.*

We can never fully estimate the debt of gratitude we owe to our ancestors for establishing our system of common schools. In consequence of their wisdom and foresight, we have all grown up in the midst of these institutions; and we have been conformed to them in all our habits and associations from our earliest childhood. . . . Can there be a man amongst us so recreant to duty, that he does not think it incumbent upon him to transmit that system, in an improved condition, to posterity, which his ancestors originated for him?—HORACE MANN.

Teachers who attended the first institute on Virgin Islands

Auspicious Beginning of Virgin Islands Teachers' Association

Ninety-seven per cent of all the teachers in the Virgin Islands attended the first teachers' institute ever held on the islands. The institute was held at Frederiksted, St. Croix, November 6 and 7, and the convention of the Virgin Islands Education Association followed immediately afterward.

Great interest was shown in the occasion, not only by the teachers but by the public. Inspiring addresses were made by the governor, the chairman of the colonial council, and other public officers.

The director of education, Arthur E. Lindborg, writes enthusiastically of the success of the meetings and predicts "big things" for the future welfare of the profession in the islands.

This Is the Time to Consider Ventilation

Proper ventilation of school buildings during the winter is essential. In a study made among high-school juniors by the North Central Association of Colleges and Secondary Schools, 15 per cent stated that the school could help more to develop health habits by looking after ventilation better. Of those stating ways in which the school tends to produce ill health, 40 per cent mentioned "poor ventilation." Pupils require fresh air. Twenty-one per cent of the 15,075 answering included "fresh air" among the "three best health habits possessed." This recreation indulging group placed it second only to "plenty of exercise."

The small rural school plant can at small expense meet the requirements for good ventilation. Some rural schools have ventilating heaters. Others have satisfactory jacketed stoves with adequate fresh-air inlets and foul-air outlets. Still others have furnaces, gravity exhaust ducts, and window boards at the majority of the windows. The window boards are frequently panes of glass 1 foot high set as deflectors in the window sash. All of these may be so regulated as to serve ventilation needs admirably.

According to experiments made under the direction of the New York State Ventilation Commission, window-ventilated rooms with gravity exhausts seemed fresher and freer from odor and were more comfortable as to temperature than rooms equipped with expensive fan systems. Appetite for food is considerably decreased if stale air is breathed. The retarding defects of malnutrition are too well established to overlook this result of poor ventilation.

The temperature of the room affects the vigor of pupils. A reliable thermometer in plain view on the teacher's desk should register a room temperature of 68°. Subjects experimented with were inclined to do 63 per cent more typewriting and 15 per cent more physical work at 68° than at 73°. The lower stimulating temperature, together with an air change, without chilling drafts, sufficient to remove the accumulation of body odors, is most favorable for study. School boards should provide at least the minimum essentials for good ventilation. Teachers should learn how to regulate them to obtain the maximum of results for their pupils.—*William Mc Kinley Robinson.*

"Guidance conferences" for freshmen students at West Virginia University are proving to be of value and interest. Addresses adapted to the needs and problems of university men are given and the students invited to take an active part in discussions. "The choice of a life career," "Intelligence tests," and "How to study" are among the subjects presented by students for discussion.

High-school Students Classified According to Ability

Grouping of students into sections according to ability has been practiced in the high schools of Seattle, Wash., with very satisfactory results. It began as an experiment three years ago and it is now in general use. In one high school all of the academic subjects of the first two years are divided into sections in this way.

Under this plan of grouping, strong students are permitted to go on and the habit of mediocrity is discouraged. Sufficient drill may be given backward students without boring quicker minds with the monotony of continual review. Not so much stress is placed on covering the course of study and more is placed on the mastery of special problems.

Making the class more uniform in ability the teacher can get better results with a large class than with a small class whose differences represent the wide range of capacity which usually exists among high-school students. The success of the plan justifies the expectation that it will be permanently adopted.

The Oriental Institute of the University of Chicago has recently established headquarters at Luxor, Egypt. A building just completed is equipped with complete apparatus for photographic work and scientific research connected with the making of a permanent record of thousands of ancient inscriptions on temple walls near the tomb of Tutenkhamon.

Dr. James Henry Breasted is director of the institute and Prof. Harold H. Nelson is in charge of the new building. The staff will consist of three or four Europeans and Americans and 15 workmen and servants.

New Books in Education

By JOHN D. WOLCOTT
Librarian Bureau of Education

ATHEARN, WALTER SCOTT. Character building in a democracy. The Washington Gladden lectures for the year 1924. New York, The Macmillan Company, 1924. 163 p. 12°.

The democratic state depends for its perpetuity on the intelligence and moral integrity of its citizens. The first of these objects is to be attained by the public schools. The democratic state is developing a system of free schools which will give to its citizens the common knowledge, skills, attitudes, and ideals necessary to guarantee the preservation of democratic institutions. It is the part of the churches to provide a comprehensive system of religious schools to parallel the public school system all the way from the kindergarten to the university. These schools should give the rising generation the necessary moral training based on religious faith. The church teachers who are to instruct an educated citizenship must themselves be educated if the citizens of the future are to be motivated by religious ideals. In view of this situation confronting Christian educators, Professor Athearn's book discusses "spiritual illiteracy" and its remedies, the evolution of the church school, the organization and supervision of religious education and the provision of qualified teachers, and the prospects for the church schools of to-morrow.

BALDWIN, BIRD T. *and* STECHER, LORLE I. The psychology of the preschool child. New York, London, D. Appleton and company, 1924. 305 p. illus., tables, diagrs. 12°.

In recent years, the results of experimental research have brought about a new vision of the mental and physical needs of the preschool child. This text presents the results so far obtained from a three years' series of observations and experiments on normal and superior children from two to six years of age in the preschool laboratories of the Iowa Child welfare research station of the State university of Iowa. The historical background of experimental studies is treated in a brief introductory review. The later chapters of the book describe in detail the preschool laboratories in which the studies were made, and the methods used in the last three years with the children who have been the subjects of training. The book bears directly also on the later development of the older child of school age.

BARBER, HARRY C. Teaching junior high school mathematics. Boston, New York [etc.] Houghton Mifflin company [1924] xi, 137 p. diagrs. 12°. (Riverside mathematical monographs, ed. by John Wesley Young.)

This monograph undertakes to tell just what is meant by the "new mathematics," what it is, why it is desirable, and how it may be successfully taught. It gives the results of the author's experience in putting the new program into effect in the public schools of Newton, Mass. The proposed reorganization applies particularly to the seventh, eighth, and ninth grades, constituting the junior high school, and was recommended by the National committee on mathematical requirements in its final report published in 1923.

FYNNE, ROBERT JOHN. Montessori and her inspirers. London, New York [etc.] Longmans, Green and company, 1924. viii, 347 p. plates. 12°.

Says that it was through the scientific study and education of idiots and other defective children that the principles of the Montessori method were originally realized and its practice suggested. The history of the method is accordingly the history of the work of Pereira, Itard, Séguin, and Montessori, which is given connectedly in this volume.

HART, JOSEPH K. The discovery of intelligence. New York and London, The Century company [1924] xvi, 431 p. front., illus. 8°.

This history outlines the intellectual progress of humanity from primitive times to the present. Men first lived by customs and habits, joined together in a complete system of living, which are called folkways. The author shows how the development of civilization has consisted in a constant struggle to surmount these folkways by intelligence.

HOSIC, JAMES F. *and* CHASE, SARA E. Brief guide to the project method. Yonkers, N. Y., World book company, 1924. vii, 243 p. illus. 12°.

This practical manual evaluates the project method, and shows what it should accomplish and what it actually has accomplished. It deals first with the theory of the project method, then describes a number of sample projects, and lastly gives hints and helps for project teachers, in geography, history, the "tool subjects", composition, and literature.

HOTCHKISS, E. A. The project method in classroom work. Boston, New York, [etc.] Ginn and company [1924] xiii, 258 p. front., illus. 12°.

Part one, comprising 30 pages, of this volume contains a brief discussion of the theories and fundamental principles underlying the method of teaching, as a background for Part two, the remainder of the volume, which gives a detailed description of projects that have been worked out in the classroom in connection with the work of training teachers. The book is the outgrowth of the author's experience as an instructor and supervisor in teachers' colleges.

LEARNED, WILLIAM S. The American public library and the diffusion of knowledge. New York, Harcourt, Brace and company [1924] vii, 89 p. maps, tables, diagr. 8°.

The progress of civilization depends upon the discovery, formulation, and diffusion of knowledge. The author mentions some of the difficulties encountered in diffusing knowledge, and the lack of provision for the adult compared with the instruction which is supplied for youth. Young graduates are commonly told that their education has only just begun, but no adequate provision is made for the continued training of adults. A community intelligence service is needed, with a personnel qualified to direct adult inquirers from printed sources of information. Other sources than print should also be utilized, such as lectures, museums motion pictures, and the fine arts. The tax-supported public library as an agency for the systematic diffusion of knowledge is next discussed in this book; also the American Library Association as an agency for the promotion of library service. The study closes with a forecast of the future development of public libraries and of the service rendered by them, in which the author recommends a library survey of the United States, experimental studies in the diffusion of library service, and adequate support of professional training and of the American Library Association.

ROBERTS, JOHN S. William T. Harris; a critical study of his educational and related philosophical views. Washington, D. C., National education association of the United States, 1924. xvi, 250 p. front. (port.) 12°.

Dr. Harris's published writings have been used as a source for this study, which was originally made as a thesis for the doctorate of philosophy in New York university.

STALEY, SEWARD CHARLE. Games, contests and relays. New York, A. S. Barnes and company, 1924. viii, 354 p. illus., diagrs. 8°.

The author has attempted to collect into this volume of mass physical recreational activities, all of the more important activities of this sort practiced by the peoples of Western civilization. It includes the pedagogy of games for the lower and upper grades, the junior and senior high school, and the college; also gives directions for relay races and combative contests.

WALLIN, J. E. WALLACE. The education of handicapped children. Boston, New York [etc.] Houghton, Mifflin company [1924] xiv, 394 p. front, plates, tables, diagrs., facsims. 12°. (Riverside textbooks in education, ed. by E. P. Cubberley.)

The results of long and extensive study by the author of all types of handicapped children are organized and presented in this book. After a brief historical survey of the development of care and training of handicapped children, the technical requirements are stated for the successful organization of special classes for children who are mentally retarded, delinquent, speech defective, crippled, deaf, blind, hard-of-hearing, or semi-sighted. A discussion follows of the theories, definition, and social consequence of mental deficiency, and the ultimate aims of constructive work in behalf of the mentally defective. The appendix contains a conspectus on the classification of mentally deficient children from various points of view.

WALTERS, RAYMOND. Educational jottings abroad. Lancaster and New York. The Science press, 1924. vii, 85p. 16°,

Various articles of special correspondence from England, Scotland, Holland, and France are reprinted from several journals of 1924 to form this volume.

Offer Prizes for Foreign-Language Study

To encourage the study of foreign languages by Londoners, money prizes for proficiency in certain languages are offered by banks and other organizations interested in foreign trade. Oral and written examinations are given by the London school authorities in Italian, Russian, Spanish, French, German, and Hebrew, in the advanced, the intermediate, and the elementary stage, and the persons standing first and second in these examinations are awarded the prizes. The largest prize is $50, offered for advanced Italian. To meet the demand for instruction in the various languages, the London County Council provides classes in more than 25 evening institutes.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1925

Another Annual Event in the American Calendar

AMERICAN EDUCATION WEEK is still growing in popularity. Reports have come by the hundreds from hamlets, villages, cities, and counties describing the enthusiasm with which parents, civic organizations, the press, and the pulpit assisted in making the observance of the program for the week of November 17–23 far surpass previous efforts.

The project lacked nothing of influential support, sponsored as it was by the Bureau of Education, the only agency of the United States Government which is devoted wholly to general education, by the American Legion, one of the great patriotic societies, and by the National Education Association, the greatest organization of teachers in the world. But above all, the observance of the week was stimulated by a proclamation of unusual strength from the President of the United States calling upon the people to turn their attention to the need of popular education in America. Nearly all the governors, as in previous years, issued proclamations in a tone of conviction that education should occupy first place in the thoughts of the people. State, county, and city school superintendents entered heartily into the work of preparing plans and issuing circulars of information and instruction and by appointing committees to have charge of the various features of the week, such as publicity and the preparation of programs.

The great success of the week may be attributed largely to the cooperation of the newspapers and the periodical press which contributed liberally of their space in publishing the proclamations and the local arrangements for carrying them out. Information sent out by the Bureau of Education was widely used. Organizations such as Parent-Teacher Associations, the General Federation of Women's Clubs, Rotary and Kiwanis Clubs cooperated most heartily and effectively with the schools in the observance of the week.

Many motion-picture theaters were placed at the disposal of the school people to make announcements regarding Education Week. The plan usually adopted was for the school officers to prepare brief statements about the schools which were placed upon slides and exhibited as part of the regular program.

Some of the radio stations were used to broadcast addresses of State and city school superintendents and others. The United States Commissioner of Education broadcast a talk each day of the week from the naval radio station at Washington.

The cooperation of business men is often mentioned in letters describing the observance of the week. In many instances school exhibits were placed in down-town store windows. American Education Week has become a permanent feature of the school year and better and better results may be expected. The idea of the importance of such a week is just beginning to get hold of the minds of the American people.

The following extracts from letters received recently are typical of hundreds of others. To print all the good things in these letters would be far beyond the limits of this journal:

BIRMINGHAM, ALA.—One school reports a housewarming on Thursday night of Education Week. Through the active cooperation of the School Improvement the occasion proved successful as shown by an attendance estimated at 700.

Another school reports that the Business Men's League and the Kiwanis Club held their luncheons in the school during the week. The dedication of the lunch on Friday evening was made a public occasion which brought together a large number of people.

A fathers' meeting was held one night at one school at which about 130 fathers were present. An educational address by a representative of the Legion was one feature.

ENTERPRISE, ALA.—Education Week was indirectly the cause of the city voting a 1 cent tax on gasoline for building and equipment purposes. Since that week the town is putting on and enforcing the compulsory attendance act. A fund for caring for the poor has been given for direct school purposes.

CONNECTICUT STATE BOARD OF EDUCATION.—The most fruitful type of meeting was that which attempted to demonstrate a single phase of work showing progress through the grades. Briefly such a meeting includes:

1. Talk by supervisor indicating the general aims, purposes, and goals.
2. Indication of and statement of the specific aims in lower, intermediate, and upper grades, together with claims for local group of pupils.
3. Demonstration by pupils proving to the people that aims are actually being accomplished.

NEW BRITAIN, CONN.—There was a community luncheon in observance of Education Week by the American Legion, Rotary Club, Lions Club, and Kiwanis Club, Tuesday noon, at Walnut Hill auditorium. Ten thousand bulletins distributed: "What are the schools trying to do?" Ten thousand bulletins distributed: "What kind of schools does New Britain need?"

NEW HAVEN, CONN.—I think that perhaps our two best ideas were (1) the requirement that every school should select some topic of Education Week and make it that school's business to celebrate the topic inviting the interest of the public; (2) the invitation of the public club to visit the Commercial High School for lunch, attend an auditorium program, and visit the various departments of the school.

TOCCOA, GA.—We classified the school library and added over 200 volumes to it.

DWIGHT, ILL.—We had contests in each room among A and B sections to try to see which section could get most parents out. Loosers treated winners.

This was the first time in the last ten years we have ever had any visitors in high-school classes. I think it was worth while in this one point only, if nothing else.

PEKIN, ILL.—During the noon hour at the county courthouse a junior high school was in session each school day for the benefit of the business men.

STERLING, ILL.—We issued tags for the children to wear, p[illegible]ed with the inscription, "My parents visited school this week"; add[illegible]nal visitors were represented on the tag by a star. The room having the highest per cent of visitors received a reward. This year the reward was the honor of using the new gymnasium for the first time. The school enrollment is 445, and 400 parents and friends visited the school during the week.

DANVILLE, IND.—The main feature of the week was a model school which we conducted in the display window of a down-town furniture store. The equipment used was our own except for the furniture, which was loaned by a near-by school supply company. The children used for the display were some from the second grade. The teacher was their regular teacher. We used only 15 children because of the small size of the window. The remaining pupils of the room from which these were taken were left at their regular building under the care of another teacher. School was conducted in the store window throughout the week. Regular class work was done.

Our display seemed to accomplish its purpose. The children were very enthusiastic about their sudden call to prominence, but they were quite orderly throughout and undisturbed by the traffic and spectators outside. The teacher, although reluctant to act as assigned, was quite gratified with the results and glad that she had been chosen. The local newspapers made favorable comments. The parents were impressed with the idea of better school furniture, for we received inquiries from some who wanted to buy a chair desk for their children as a Christmas present.

KENTLAND, IND.—Every home was reached, for we mailed, first class, a letter to each family.

LA PORTE, IND.—We dedicated our new high-school building.

CLARENCE, IOWA.—On Sunday evening of the week we succeeded in getting the whole community interested. We have a consolidated district with 700 population. We have one church which will seat 700. This building was used and the other churches had no services. The program was given over to citizens, school, and Legion. All topics discussed were educational in their nature. We have had these meetings for two years and they have been well attended and much interest is shown. The building is always full.

DES MOINES, IOWA.—A different high-school boy broadcast over WHO every afternoon during the week. This gave us quite a bit of space all over the State of Iowa. Incidentally, it gave the high school whose boy was broadcasting an opportunity to have an assembly at the time he broadcast, where they listened in.

Des Moines is in a $7,000,000 campaign. We are taking advantage of the public's interest and formally dedicating buildings and laying corner stones. During the week we laid corner stones of two of our new $600,000 junior high schools.

ODEBOLT, IOWA.—A model schoolhouse, with school ground, and surroundings was constructed by the normal training students and put on display in a show window of a business house with a big sign, "American Education Week."

OSAGE, IOWA.—The school is conducting a patriotic oratorical contest, a copy of the regulations concerning which are herewith submitted. Business and professional men of the city raised and deposited a fund of $135 to be used for prizes.

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SCHOOL LIFE does not specialize in any portion of the educational field, and the articles are never technical. Every primary teacher and every high-school teacher should know what the higher institutions are doing, and every university professor should be in close touch with the work of the schools below. This is the idea which governs the policy of SCHOOL LIFE; it furnishes current information useful to everybody engaged in educational work of any grade.

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